NOVEMBER 1957

Drug and Cosmetic Industry

Time Table
for hanging game birds
WILD TURKEY *4-5 days †2-4
Bled promptly, and drawn watch closely
hase delicate flavor
WILD DUCK *4 5 days †1 3
WILD GOOSE *5 6 days †1 4
PHEASANT *8 10 days †2 4
GROUSE *8 10 days †1 4
*in dry cool weather hung out of doors.
†mild weather.
joel

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Dry vitamin A and D_2

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LIQUID TYPES	**P1MO** **Vitamin A palmitate** ***(liquid)***	In tablets, aqueous dispersions, capsulated products	1,000,000	Edible oil only, for standardization	Excellent	—
	P1MO/BHA **Vitamin A palmitate** ***(liquid)***	as above	1,000,000	Edible oil plus antioxidant (butylated hydroxy-anisole). Note 1.	Excellent	—
	P1.3 **Vitamin A palmitate** ***(liquid)***	For oil-free preparations	1,350,000 to 1,450,000	None	Excellent	—
	A1MO **Vitamin A acetate** ***(liquid)***	In oil solutions and gelatin capsules	1,000,000	Edible oil only, for standardization	Excellent	—
SPECIAL	**Type P1.8** ***(liquid)*** **Vitamin A palmitate**	For research and special production	1,650,000 to 1,800,000	None	Needs special handling	—
	Type A2.9 ***(crystalline)*** **Vitamin A acetate**		2,800,000 to 2,900,000	None	Needs special handling	—
DRY TYPES	**Type 325A-32.5D** **Vitamin A acetate &** **Vitamin D_2** ***(dry)***	For tablets, capsules, vitamin-fortified powdered supplements	A—325,000 D_2—32,500	None	Excellent	40 and 60
	Type 325 **Vitamin A** ***(dry)***		325,000	None	Excellent	40 and 60
	Type 500 ***(dry)*** **Vitamin A acetate**	For dry preparations: tablets, capsules, vitamin-fortified powdered supplements	500,000	None	Excellent	40 and 60
	Type 500A-50D **Vitamin A acetate &** **Vitamin D_2** ***(dry)***		A—500,000 D_2—50,000	None	Excellent	40 and 60

Note 1 Antioxidant added at 10 mg. per 1,000,000 units of vitamin A.

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Drug and Cosmetic Industry

Contents November 1957 Vol. 81 No. 5

Feature Articles

593 **Fifth Annual Symposium on Antibiotics**

595 **Face Make-up**
by Harry Hilfer

596 **Pharmaceutical Emulsions**
by James L. Chen, Gilman N. Cyr, and Asger F. Langlykke

598 **Oil of Vetiver**
by Steffen Arctander

600 **Taking the Doctor's Personality Pulse**
by J. L. Huck Jr.

602 **Anti-Seborrheic Agents**
by Irwin I. Lubowe, M.D.

604 **Negro Cosmetics**
by Marvin K. Cook

606 **A New Lubricating Jelly**
by Gerhard Levy and T. W. Schwarz

608 **Research Organization 5: The Toni Company**

●

Packaging and Selling Section

613 **Lentheric Launches Tweedie**

617 **Polyethylene Bottles**

620 **Packaging and Selling**
by Frazer V. Sinclair

627 **News in Packaging**

●

Departments

585 **Keeping Posted**
by Thomas R. Farrell

628 **Patent Thoughts and Trends**
by Thomas Cifelli, Jr.

636 **News**

647 **Management Forum**
by Francis Chilson

659 **Compounder's Corner**
by Joseph Kalish, Ph.D.

663 **Advancing Therapy**
by Joseph Kalish, Ph.D.

668 **Perfumer's Shelf**
by Joseph Kalish, Ph.D.

671 **Skin Research**
by Joseph Kalish, Ph.D.

679 **Industry's Books**
by Harry G. Kelbly

681 **Trade Literature**

682 **Reader's Questions**
by Joseph Kalish, Ph.D.

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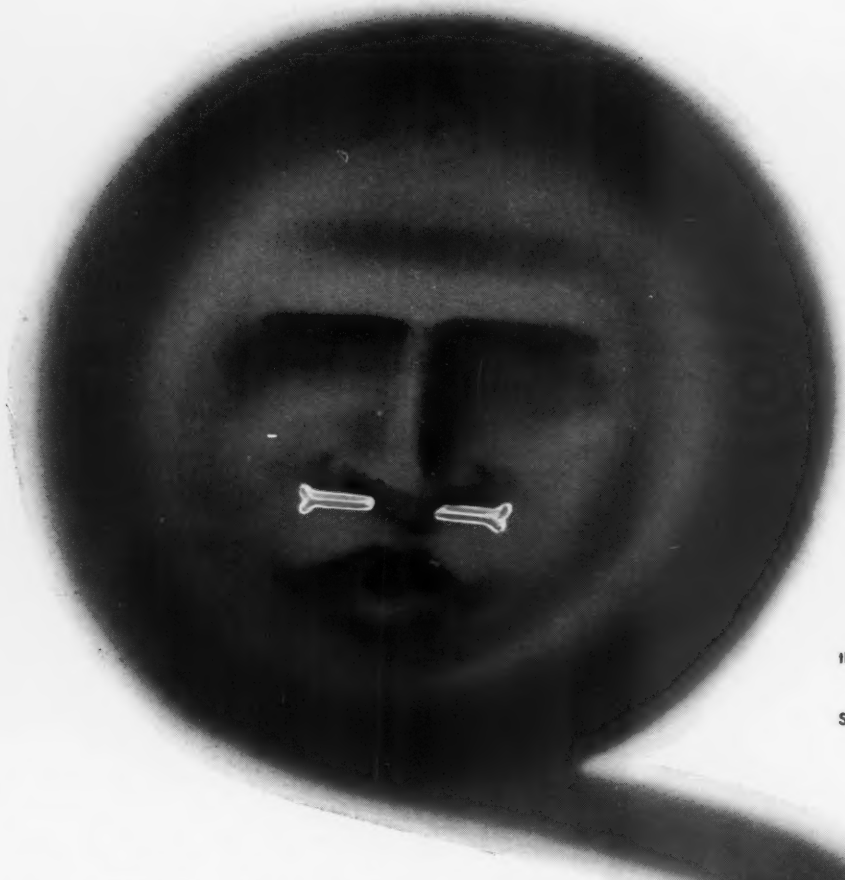

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TABLE OF CONTENTS

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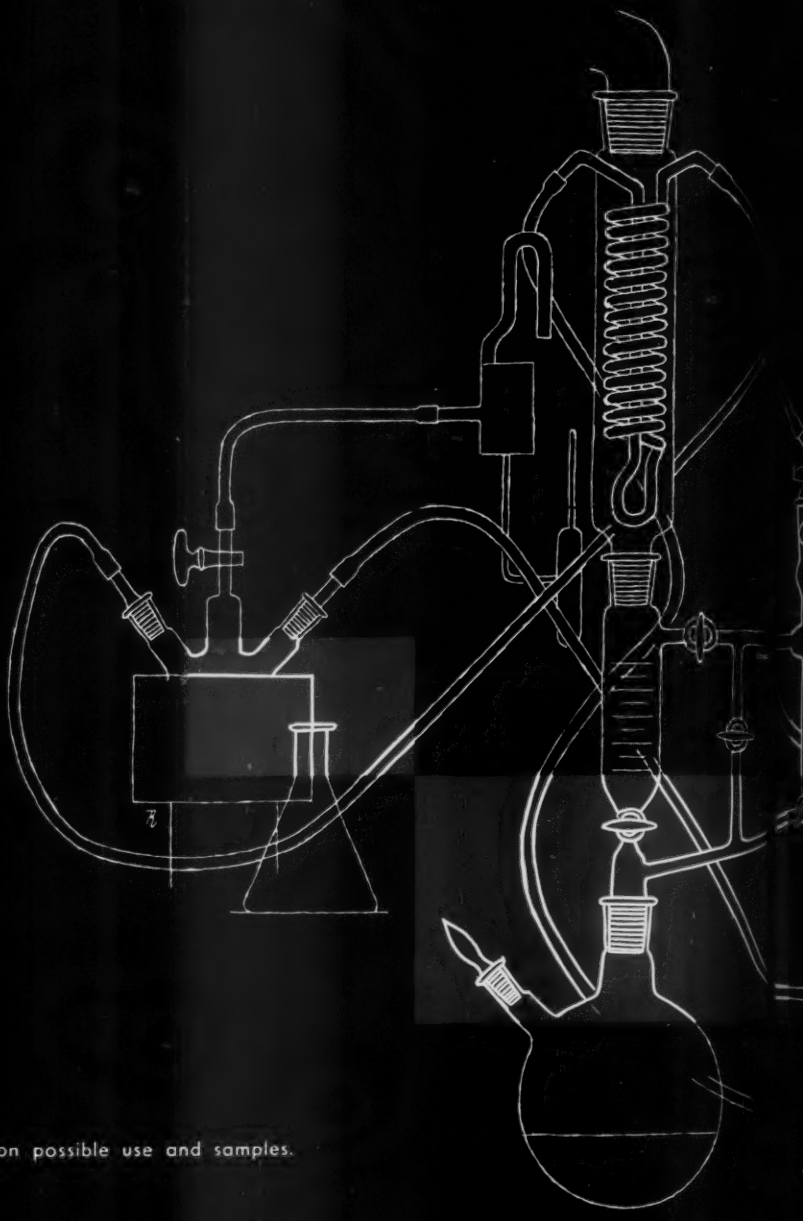

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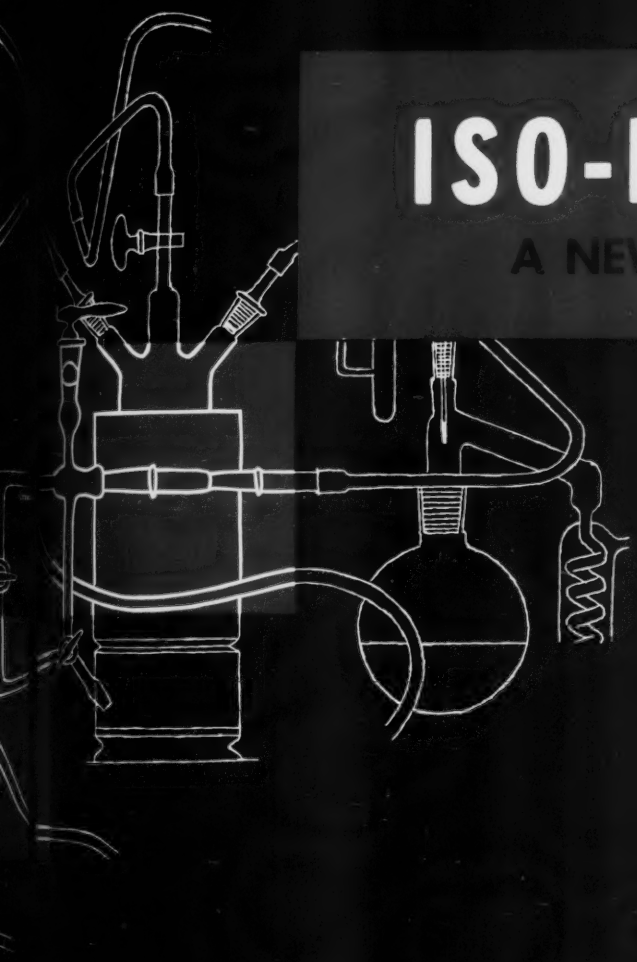

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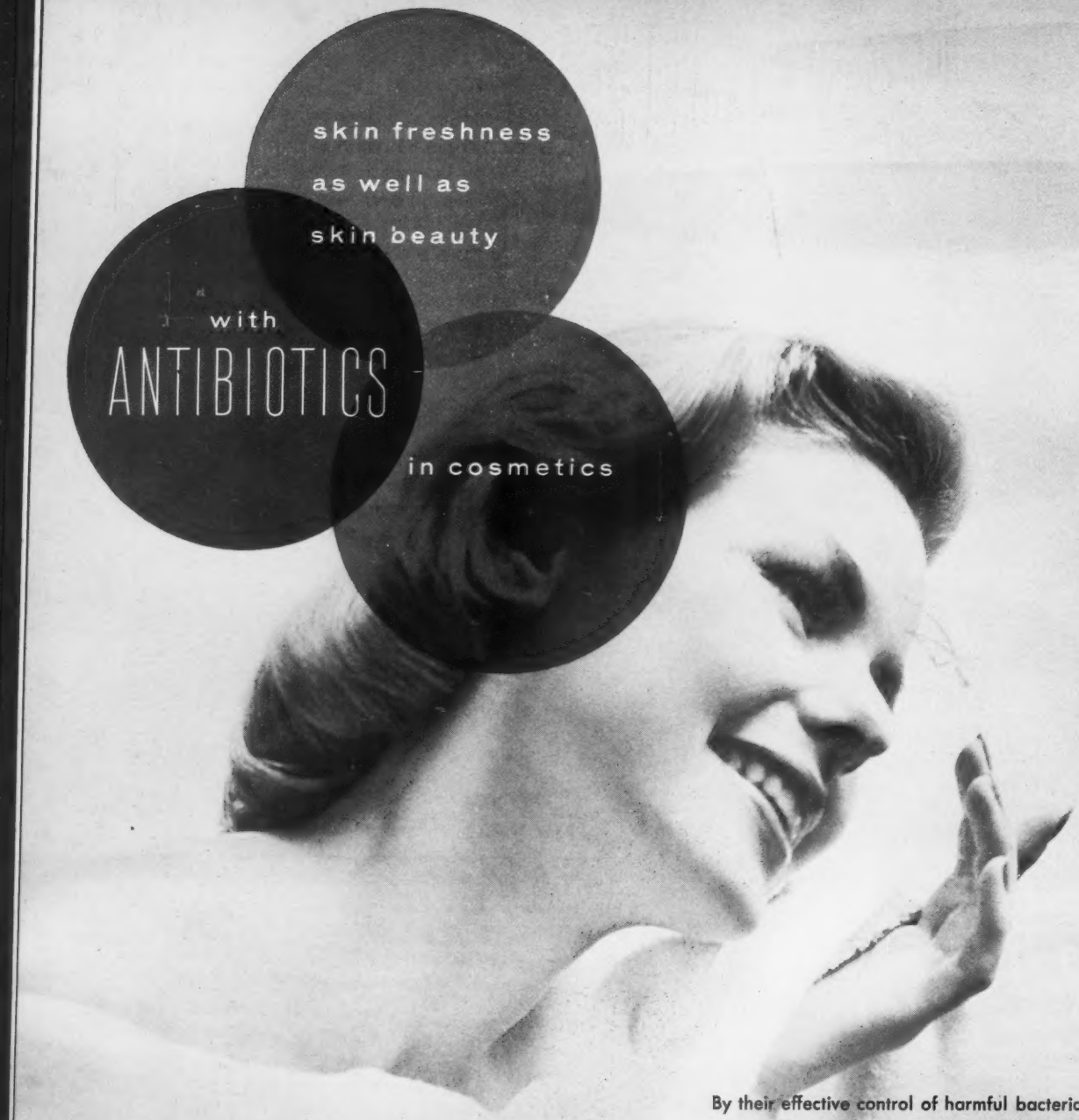

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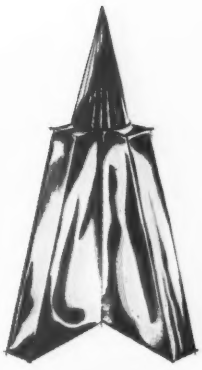

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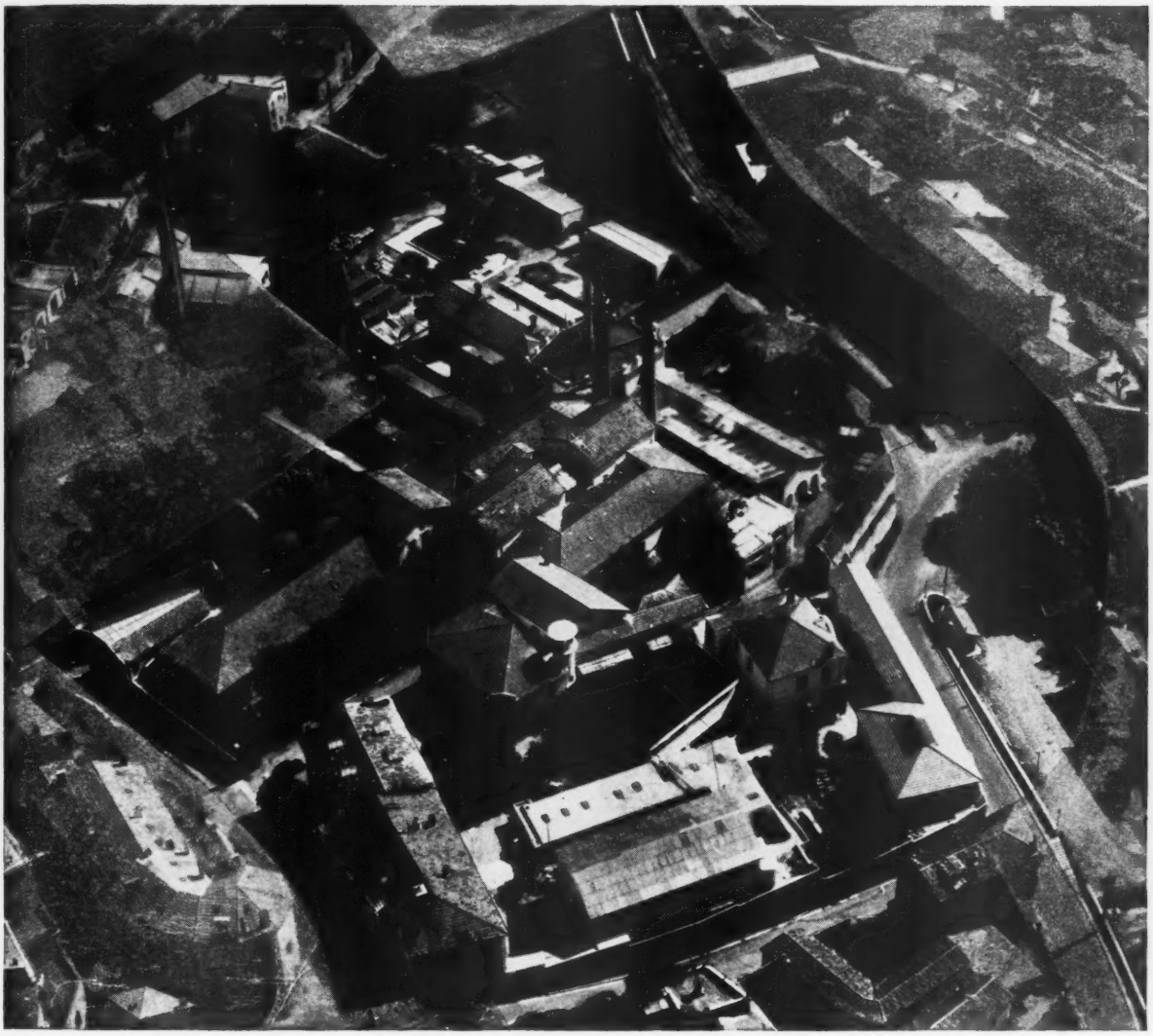

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U.S.I. CHEMICAL NEWS

November ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1957

U.S.I. Joins Mallory And Sharon in Integrated Company to Produce Zr, Ti

U.S.I. will soon join in the management of Mallory-Sharon Titanium Corporation which will change its name to Mallory-Sharon Metals Corporation. The reorganized company will then produce zirconium and titanium metals and mill products, and other special light metals such as hafnium. Each of the following companies owns a one-third interest in the new enterprise: National Distillers and Chemical Corporation (U.S.I. Division), P. R. Mallory & Co., Inc. and Sharon Steel Corporation.

All assets of both the Mallory-Sharon Titanium Corporation and Reactive Metals, Inc., as well as USI-National Distillers' zirconium plant and forthcoming titanium plant will be combined in the newly formed corporation. With assets exceeding $55 million, the new company will be the largest fully integrated producer of special metals.

Presidents of the three owner companies have made this joint statement: "This consolidation of interests creates a completely integrated special metals company with technical 'know-how' and facilities for every step, from original chemical process to production and fabrication of finished products. The benefits from this strengthening of operations, plus the combination of current and future research activities, hold great promise for present production of titanium and zirconium and for other special metals as well."

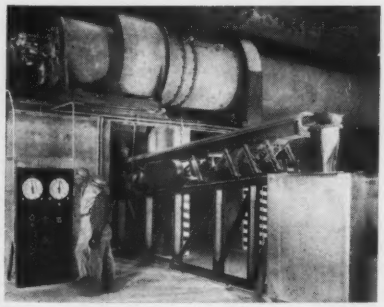
Zirconium Metal Plant Starting Up

In 1956 U.S.I.-National Distillers was awarded a contract by the Atomic Energy Commission to supply one million pounds of zirconium metal annually for a five-year period. A plant was designed and built at Ashtabula, Ohio with a design capacity of 2 million pounds per year, and the plant is now in process of being started up. Hafnium sponge and oxide will also be produced as an adjunct to the zirconium operation.

A titanium sponge plant with a design capacity of ten million pounds per year is under construction at Ashtabula.

Both of these plants have been designed to utilize a new sodium-reduction process developed by U.S.I.-National Distillers. It is

MORE



Zirconium oxide kiln in chemical processing section of Mallory-Sharon Metals Zr plant.

Methionine Given After Exposure Reduces Damage From Radiation

Report Is First Evidence of Methionine's Effectiveness Against Tissue Breakdown When Given After Exposure to Radiation

New experimental evidence indicates that the sulfur amino acid, methionine, is even more effective in reducing tissue damage caused by radiation when administered *after* radiation exposure than it is when given *before* exposure.

Earlier reports have demonstrated methionine's ability to protect experimental animals from the effects of subsequent exposure to X-ray irradiation (U.S.I. CHEMICAL NEWS, Sept.-Oct., 1955). The present work, reported in a leading English scientific journal by Indian scientists working in Bombay, is believed to be the first to show methionine's post-irradiation effectiveness.

In the tests, deoxyribonucleic acid (DNA) levels in the liver, spleen and bone marrow were used as a measure of the extent of radiation damage. DNA is the substance in the nucleus of all cells believed to carry the mechanism of heredity. The researchers found that DNA levels in untreated animals were reduced by as much as 87% after exposure to radiation. DNA in methionine-treated animals was reduced to only about one-half of pre-exposure levels.

Methionine administered prior to irradiation afforded a considerable amount of protection, but was less effective than post-irradiation treatment. The radiolability of methionine—its tendency to be destroyed by ionizing radiations such as X-rays—is believed to account for this reduced effectiveness.

In evaluating the pre- and post-irradiation effectiveness of methionine, however, it should be noted that in the recent work methionine was given intraperitoneally. It has been reported (U.S.I. CHEMICAL NEWS, July, 1957) that radiation can cause a decrease in the ability of the body to absorb methionine that has been fed orally.

Methionine Aids Nucleic Acid Synthesis

The specific means by which methionine acts to prevent tissue damage from radiation is related to the nucleic acid synthesizing mechanism itself. Methionine is known to play a part in two chemical processes which are involved in the production of DNA — transmethylation and phosphorylation. (Methionine is a principal source of methyl groups for the animal organism and is a precursor of creatine, which is active in the phosphorylation process.) Thus, by aiding two of the essential routes by which nucleic acids are made, methionine keeps the synthesizing mechanism in order and exerts a therapeutic influence on radiation injury.

The considerable amount of research that has been done on methionine's effectiveness in minimizing radiation damage stems from methionine's well known ability to promote healing of wounds and burns. It is also a detoxifying agent through its action on the liver.

MORE

Brightness Is Controlled By pH in Sodium Peroxide Bleaching of Groundwood

A recently reported investigation into the fundamental chemistry of bleaching groundwood with sodium peroxide indicates that reaction rate and pulp brightness increase with pH. However above a certain pH, a colored compound is formed which tends to yellow the pulp. Therefore there is, in commercial practice, an upper pH limit for the production of pulp having maximum brightness.

Brightness Development in Sodium Peroxide Bleaching of Groundwood

pH	Time to reach max. brightness, min.	Effective Na peroxide consumption, g./l.	Maximum brightness, %
9.0	180 +	0.10	57.1
10.0	130	0.33	59.3
10.5	110	0.47	60.2
11.0	80	0.53	60.7
11.5	70	0.53	60.2
12.0	40	0.56	60.4
12.5	20	0.48	59.2

Sodium peroxide bleaching of groundwood has been used for some time by pulp makers. It produces a relatively large increase in brightness at low cost, without affecting pulp quality adversely or decreasing yield materially.

This study reveals that the rate of total peroxide consumption increases as pH rises from 9 to 12, due largely to the increased rate of the peroxide-groundwood reaction. The rate at which peroxide decomposes to form oxygen also goes up with pH, but this is minimized by materials in the groundwood and by adding stabilizers.

It was also learned that the rate and amount of brightness improvement increases with pH. Yellow color, mentioned previously, increases at the same time, the effect being more pronounced toward the end of the bleaching period. It causes reversion of brightness in some cases.

The most effective bleaching under the conditions used by the investigators was obtained at pH 11. Here the peroxide-groundwood reaction is fast enough, in relation to the decomposition reaction, to give appreciable bleaching in the first third of the bleaching period. On the other hand, the pH level is not high enough to produce excessive color shift and brightness reversion.

Sodium peroxide for groundwood bleaching is made from metallic sodium at U.S.I.'s plant in Ashtabula, Ohio.

November ★ **U.S.I. CHEMICAL NEWS** ★ 1957

CONTINUED Methionine

Methionine also is known to improve feathering in poultry and hair coat quality in fur bearing animals. As the only sulfur-containing essential amino acid, it is widely used in the manufactured feed industry as a protein supplement to promote growth and health in livestock and poultry.

The first commercial synthesis of methionine, which has led to its widespread use in medical and animal feed applications, was pioneered by U.S.I.

CONTINUED New Company

believed to be the lowest cost method developed to date for the production of these metals. Mallory-Sharon Metals will be granted an exclusive, royalty-free license in the U. S. for the production of titanium, zirconium and other metals by this process.

Sodium is supplied by the existing U.S.I.-National Distillers sodium operation three-quarters of a mile away. At Ashtabula, Mallory-Sharon Metals will also have facilities for melting zirconium metal into ingots.

Titanium sponge will be melted and both metals fabricated at the existing Mallory-Sharon plant at Niles, Ohio.

High Purity Silicon Being Made Via Sodium Reduction

High purity metallic silicon for electronics use in semi-conductor devices is now being produced by the sodium reduction of silicon tetrachloride. The product contains boron in the order of two parts per billion, and has resistivities up to 500 ohm-centimeters.

Several thousand pounds of the material have already been manufactured in one plant overseas, and indications are that this process is more economical than either hydrogen reduction of silicon tetrachloride or reduction of silicon monoxide.

New Cooling Towers Packed with Polyethylene Grids

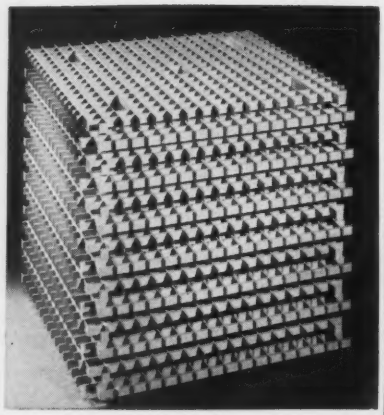


Photo shows typical stacking arrangement of polyethylene grids. (courtesy Fluor Products)

Polyethylene is now being injection molded into grid packings for water cooling towers. These grids are designed to provide the air-water contact surface usually provided by wooden bars or slats. They cool very efficiently, and eliminate maintenance problems due to their strength and corrosion resistance.

The grids are available in 2 sizes (3 ft. sq. and 2 ft. by 4 ft.). They are stacked vertically two inches apart in the cooling tower. This spacing arrangement allows for horizontal distribution of rising air and cascading water. It provides the same cooling efficiency as would the usual unspaced series of wooden slats while saving weight and material.

In addition to applications in new industrial and air conditioning cooling towers, these polyethylene grids can replace worn out portions of wooden packings in existing cooling towers. They have potential in gas scrubbers, trickling filters and other operations where efficient gas-liquid contact is desired.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

Polyethylene packaging materials are illustrated in a recent brochure. Bags, sheets, drum-liners and pressure-sensitive tapes are described, as well as water vaporproof, flexible and protective wraps made of barrier material. **No. 1291**

Buffer salts in disposable packets are now available. Each packet is carefully weighed, has been lot-analyzed for purity. Contents dissolved in a litter of water provide a ready-to-use buffer solution. **No. 1292**

Tape entry to computers is facilitated by a new machine with internal core storage, which gathers asynchronous digital information from external sources and combines them in any sequence with record numbers and manually inserted data. **No. 1293**

A new pamphlet on zirconia discusses the history, the chemical and physical properties, the composition, and the porosity of the chemical. Included is a refractory comparison chart. **No. 1294**

A calibrated dispenser delivers a specific volume of liquid from 1 cc. to 100 cc. rapidly and repeatedly. Measurement is automatic, said to be accurate to within 1%. Can be used for volatile, toxic, or alkaline liquids. **No. 1295**

Two monomeric ester-type plasticizers are said to be useful for safety glass, synthetic rubbers and lacquers, and as plasticizers for cellulose acetate butyrate, polystyrene, acrylic resins and ethyl cellulose. **No. 1296**

A pamphlet on fire research reports of the facilities, personnel and management of the principal agencies engaged in this work. It also describes tests of various materials and fire-protection systems. **No. 1297**

A polyethylene pump is now being made for use with inflatable boats and mattresses. Air is trapped inside the bag by folding the top together, and forced into the mattress through a valve by compressing the bag. **No. 1298**

Oleoresin mace, a new spice oleoresin, is described as a dark, reddish-brown, homogeneous liquid, and is said to be completely solvent-free. It contains from 50 to 60 cc. of volatile oil per 100 grams net. **No. 1299**

A new nickel stripper is reported to contain no cyanide, caustic or acid, and to be stable over long periods of time, even at high temperatures. Manufacturer claims it will not fume, pit or corrode. **No. 1300**

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Animal Feed Products: Calcium Pantothenate, Choline Chloride Products, MOREA® Premix, Special Liquid Curbay®, DL-Methionine, Niacin USP, Riboflavin Concentrates, Vitamin B_{12} and Antibiotic Feed Supplements, Vacatone® 40, Vitamin D_3 and K_3 Products, Antioxidant (BHT) Products, Special Mixes, U.S.I. Permadry Products (Sealed-In Vitamin A).

Inorganic Chemicals: Ammonia, Caustic Soda, Chlorine, Metallic Sodium, Sodium Peroxide, Sulfuric Acid.

Metals: Titanium Sponge, Zirconium Sponge, Zirconium Platelets, Hafnium Oxide, Hafnium Sponge.

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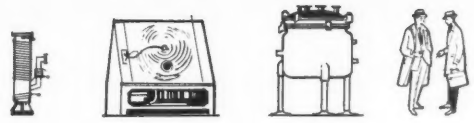

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Formula	$CH_2OHC(CH_3)NH_2CH_2OH$
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Melting Point, °C	109 to 111
Boiling Point, °C	151 to 152 at 10mm
pH of 0.1M Aqueous Solution at 20°C	10.8
Solubility in Water g/100 ml at 20°C	250

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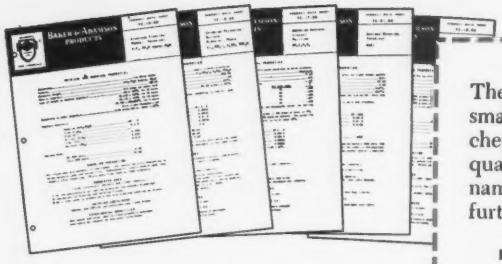

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To Obtain Data sheets on the B&A Fine Chemicals that interest you, just check the items, cut out the list and mail it with your business letter head.

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Product	Data Sheet No.
☐ Acetamide, Crystal, Technical	DA-30081
☐ Acetyl Chloride, Technical	DA-30151
☐ Acid Fluoboric, 48-50%, Purified	DA-30692
☐ Acid Hydrofluoric, 48% (C.P.) A.C.S.	DA-49792
☐ Acid Molybdic, 85% Purified	DA-31181
☐ Acid Oxalic, Anhydrous	DA-31341
☐ Acid Phosphoric, Ortho, 75%, Food Grade	DA-31551
☐ Acid Phosphoric, Ortho, 85%, N.F.	DA-31581
☐ Aluminum Fluoride, Powder, Technical	DA-32521
☐ Aluminum Nitrate, Crystal, Technical	DA-32341
☐ Aluminum Sulfate, Hexahydrate, Technical	DA-48871
☐ Ammonium Acetate, Crystal, Purified	DA-32711
☐ Ammonium Fluoborate, Crystal, Technical	DA-32731
☐ Ammonium Fluoride, Crystal, Technical	DA-32671
☐ Ammonium Oxalate, Granular, Purified	DA-33251
☐ Ammonium Persulfate, Crystal, 98%, Purified	DA-33091
☐ Ammonium Sulfate, Purified	DA-33151
☐ Ammonium Sulfite, Crystal, Purified	DA-33231
☐ Ammonium Thiosulfate, Sol. Tech.	DA-85271
☐ Barium Fluoride, Technical	DA-34181
☐ Boron Trifluoride, Compressed Gas	DA-34691
☐ Boron Trifluoride, Ether Complex, Technical	DA-34711
☐ Boron Trifluoride, Phenol Complex, Technical	DA-34681
☐ Calcium Acetate, Powder, Purified	DA-34991
☐ Calcium Chloride, U.S.P.	DA-35011
☐ Calcium Fluoride, Powder, Reagent	DA-35201
☐ Calcium Phosphide, Technical	DA-35341
☐ Chromium Fluoride, Technical	DA-35771
☐ Chromium Nitrate, Crystal, Purified	DA-35801
☐ Chromium Nitrate, Solution, Technical	DA-49711
☐ Chromium Potassium Fluoride, Purified	DA-35791
☐ Chromium Potassium Sulfate, Granular, Photo	DA-35841
☐ Cupric Fluoride, Technical	DA-36481
☐ Cupric Nitrate, Crystal, Purified	DA-36421
☐ Cupric Nitrate, Solution, Technical	DA-49701
☐ Cuprous Chloride, Technical	DA-36571
☐ Ferric Nitrate, Crystal, Technical	DA-37441
☐ Ferrous Ammonium Sulfate, Crystal, Technical	DA-37571
☐ Ferrous Sulfate, Exsiccated, U.S.P.	DA-37671
☐ Lead Nitrate, Crystal, Technical	DA-38371
☐ Magnesium Fluoride, Purified	DA-39121
☐ Magnesium Nitrate, Crystal, Technical	DA-39131
☐ Nickelous Nitrate, Crystal, Purified	DA-40271
☐ Oxamide, Purified	DA-48651
☐ Potassium Acetate, N.F., Crystal, Technical	DA-40821
☐ Potassium Bifluoride, Technical	DA-41461
☐ Potassium Borate, Tetra, Purified	DA-40771
☐ Potassium Cyanate, Powder, Purified	DA-41591
☐ Potassium Cyanate, Powder, Technical	DA-48821
☐ Potassium Fluoride, Anhydrous, Purified	DA-40911
☐ Potassium Fluoride, Crystal, Purified	DA-41041
☐ Potassium Fluoborate, Crystal, Technical	DA-41361
☐ Potassium Nitrite, Fused, Lump	DA-85521
☐ Potassium Thiosulfate, Purified	DA-41521
☐ Potassium Titanium Fluoride	DA-40722
☐ Selenium Metal, Powder, Se	DA-48011
☐ Sodium Fluoborate, Crystal, Technical	DA-42401
☐ Stannous Chloride, Crystal, Technical	DA-43421
☐ Zinc Formate, Crystal, Purified	DA-44441

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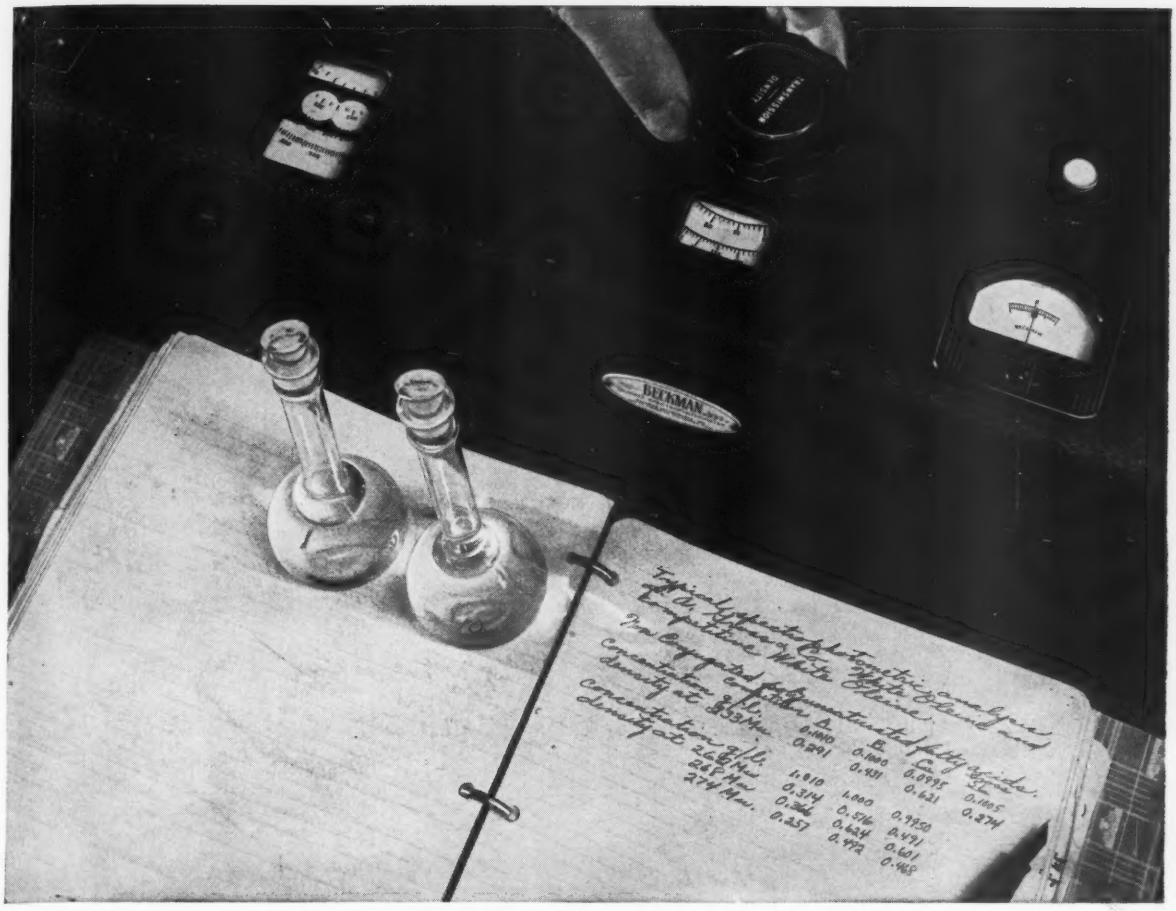

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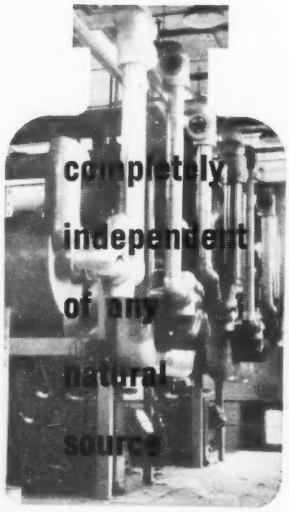

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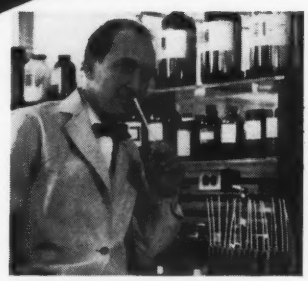

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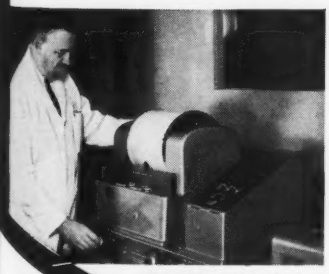
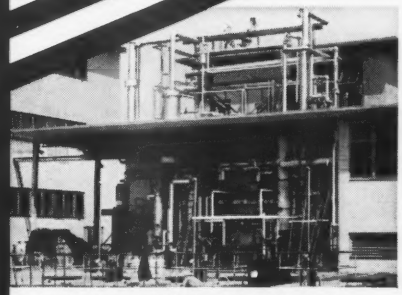


Constant control of uniformity.



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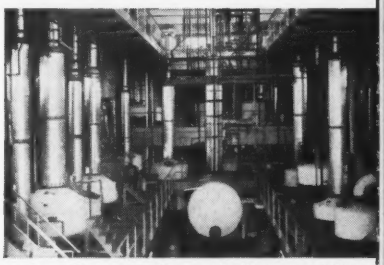

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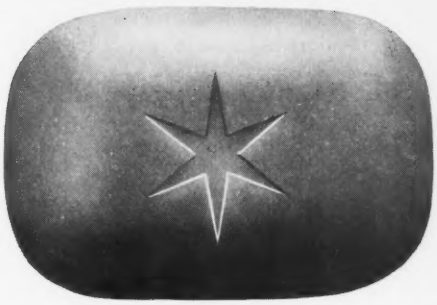

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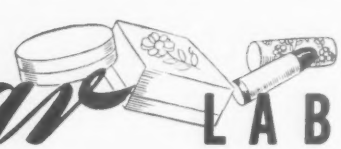

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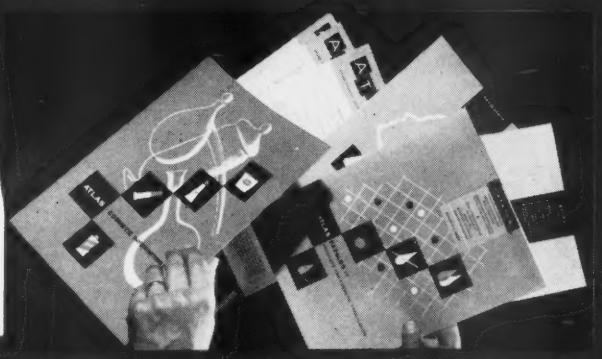

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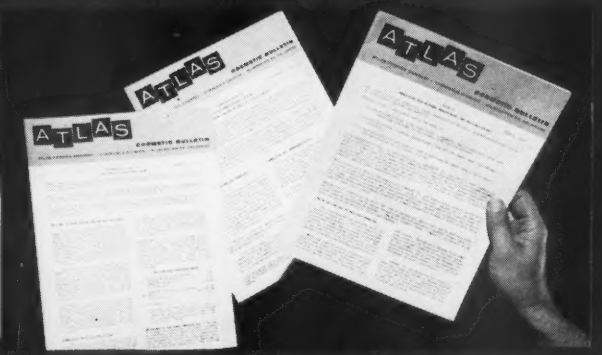

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Keeping Posted

Smith, Kline & French Laboratories

Trading in shares of Smith, Kline & French Laboratories began October 14 on the New York and Philadelphia-Baltimore Stock Exchanges. The ticker symbol is SKF. Admitted to trading were 4,843,770 shares of common stock of 33 1/3 cents par value—there is no preferred issue.

Since 1929, when wholesaling operatings were separated from research and manufacturing, Smith, Kline & French Incorporated became the wholly owned wholesale distributor and Smith, Kline & French Laboratories became the parent company. SKF Incorporated is the number 1 drug wholesaler in the Philadelphia-Trenton-Wilmington area. Another wholly owned subsidiary is the Avoset Company, San Francisco, suppliers of such milk products and by-products as Avoset, a sterilized dairy cream; Quip, a nationally advertised whipped cream; casein, sugar of milk, and sterilized milk.

SKF Laboratories is described as a leader in drugs which affect human behavior, starting in the 1930's with Benzedrine and Dexedrine—central nervous system stimulents; followed in 1954 by Thorazine—the widely accepted tranquilizer; and followed late last year by Compazine—for mild to moderate emotional conditions. The company also markets products in such fields as nutrition, cardiovascular medicine, gastrointestinal medicine, dermatology, and endocrinology.

Research expenditures for 1956 were close to $7 million, and were increased in 1957 "as a deliberate policy decision" to about $9 million. The 1958 research budget is expected to be still higher. One out of five employees is in the Research and Development Division. Three categories in medicine are foremost in research activities: Drugs which affect human behavior and moods; cardiovascular medicine; and metabolic medicine—in a search for endocrine and other agents which will alter the body's basic chemistry.

In 1947, SKF Laboratories sales totaled $32,060,773, with earnings of $3,813,302. These climbed in ten years to $104,608,502, and $18,059,604 in 1956. In the first half of this year, consolidated net sales were $55,677,785, and net earnings were $9,714,639. This compares with net sales of $52,885,065, and net earnings of $9,961,170 for the first six months of 1956. The slight decline in earnings was attributed by the company principally to the "deliberate" increase in research expenditures.

By the end of 1957, SKF will have completed a four-year, $21 million physical expansion program financed entirely out of earnings. The company has no funded indebtedness. In addition, in March 1956, the company spent $2.9 million to acquire its manufacturing distributor in the British Commonwealth.

Cosmetic Chemists' Program

The Society of Cosmetic Chemists, which will hold its Annual Meeting and Medal Award Dinner December 10 at the Hotel Commodore, New York, has announced the following scientific program:

Morning session: Some Aspects of Chelation in Cosmetic Products, by Andrew J. Gard, The Dow Chemical Company; The Lipid Assay of the Skin, by Howard T. Worne, Haddonfield, N. J.; Studies of Enzymes in the Skin: Their Value as a Research Tool, by Robert D. Griesemer, Department of Dermatology, Massachusetts General Hospital; The Role of Survey Research in New Product Development, by J. Steven Stock, J. Steven Stock Research Company.

Afternoon Session: Factors to be Considered in the Preservation of Cosmetic Emulsions, by Linwood F. Tice and Martin Barr, Philadelphia College of Pharmacy and Science; Aerosol Emulsion Systems, by Paul A. Sanders, Organic Chemicals Department, Freon Products Laboratory, E. I. du Pont de Nemours & Company; Evaluating a Liquid Lanolin—a Case Study, by E. Allen Newcomb, Malstrom Chemical Corporation.

Pharmaceutical Research Costs

As the result of a survey conducted at the request of the National Institutes of Health by the American Drug Manufacturers Association on the amount of money the pharmaceutical industry is investing in research, figures for 1956 and 1957 have been made avail-

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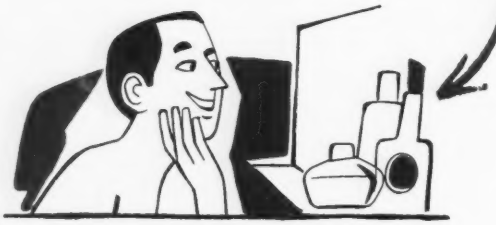

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able for "expenditures of pharmaceutical and medicinal chemical industry, particularly those of member companies of the American Drug Manufacturers Association."

It is explained that the figures given are the total of confidential responses of individual member firms plus published figures and estimates for firms which are not members of the ADMA. The amount added through estimates does not exceed two per cent of the total sums reported.

The survey shows that the pharmaceutical industry is spending $127 million in 1957 for all drug or medical research and development, compared with $110 million spent in 1956. Of these amounts, $114 million is being spent within the firms for 1957, against $99 million spent within the firms in 1956. Of the $13 million for 1957, and the $11 million for 1956 spent outside the firms, the following breakdown is given: Educational institutions (contracts, grants, and fellowships specifically for research and development only), 1957 $4.5 million, 1956 $3.8 million; Research institutes, foundations, and hospitals (whether independent or affiliated with educational institutions), 1957 $6.14 million, 1956 $5.14 million; Commercial Laboratories and consultants, 1957 $2 million, 1956 $1.8 million; Other companies, 1957 $140,000, 1956 $160,000; Other, 1957 $220,000, 1956 $100,000.

Capital expenditures for purchase of equipment and expansion of plant for drug or medical research and development use totaled $19.2 million for 1957, against $12 million for 1956.

Reports on the percentage of gross sales spent on research from 37 companies were considered significant. The percentage range and the number of firms reporting within each range are: 2 to 2.9 per cent, 1957 4, 1956 4; 3 to 3.9 per cent, 1957 4, 1956 9; 4 to 4.9 per cent, 1957 9, 1956 4; 5 to 5.9 per cent, 1957 3, 1956 3; 6 to 6.9 per cent, 1957 4, 1956 6; 7 to 7.9 per cent, 1957 2, 1956 1; 8 to 8.9 per cent, 1957 2, 1956 4; 9 to 9.9 per cent, 1957 2, 1956 1; 10 to 10.9 per cent, 1957 2, 1956 0; 11 to 11.9 per cent, 1957 1, 1956 2; 12 to 12.9 per cent, 1957 2, 1956 1; 13 to 13.9 per cent, 1957 1, 1956 0; 14 to 15 per cent, 1957 1, 1956 2.

The report says "If the generally available estimate of $1.5 billion as total business at the manufacturers' level for the ethical pharmaceutical industry in 1956 is accepted, and if the figure of $110 million for total research is used, the research-business volume ratio for the industry is 7.3 per cent. This is an unusually high percentage of total sales spent for research.

When asked about drug or medical research and development expenditures five years from now, thirteen of twenty-five companies answering expect to spend 50 per cent more by 1962; one large firm expects to double its expenditures; two companies estimate an increase of 300 per cent; two companies project yearly increases, one of 5 per cent and the other of 10 per cent; and seven companies plan to spend about the same proportion of their total sales on research as they do at present (from 2 to 6 per cent).

Rexall Expansion

Rexall Drug Company, which had its origin in Boston in 1903, but which has had its headquarters in California for some years past, now has a newly constructed Eastern Home Office and Warehouse at West Roxbury, Massachusetts. Furthermore, the company has begun volume production of polysterene plastic powder in its plant in Holyoke, Massachusetts. "The full scale operation of these new Rexall facilities in New England represents a significant part of the company's current five-year program of expansion and diversification," said Rexall President Justin Dart. The volume production in Rexall's new chemical and plastic division is the company's first venture in the plastics field. The powder will be sold to plastic molders, it being said that Holyoke is "the heart of a concentration of molders of polysterene plastics. The plant is operated by Seamco Chemical Co., a division of the Seamless Rubber Co., a Rexall subsidiary.

Beside having its manufacturing facilities for Rexall, ethical, and proprietary drugs, the company has 158 company-owned Rexall drug stores. More than 10,000 independent drug stores are Rexall agents.

TGA Scientific Program

The Scientific Section of the Toilet Goods Association will hold its 26th meeting on Monday, December 9, in the Sert Room of the Waldorf-Astoria, New York, with luncheon in the Empire Room. The program for the meeting, which is closed to non-members, follows: Polyoxyethylene Gums in Toilet Goods, by Lloyd Osipow and Lester D. Berger Jr., Foster D. Snell Inc. and Union Carbide Chemicals Company, respectively; Cutaneous Antiseptic Activity of 3, 4, 4′ – Trichlorocarbanilide, by Daniel P. Roman and E. Harvey Barnett, Monsanto Chemical Company; The Effects of Fluorides on the Solubility of Powdered Tooth Enamel, by S. D. Gershon, O. W. Neiditch, and R. H. C. Lee, Research and Development Division, Lever Brothers Company; Use of the Patch Test in Eliminating Dermal Hazard, by Harry L. Rubenkoenig and Robert A. Quisno, Hilltop Research Institute; Silicone Defoamers—Physical Aspects and Defoaming Efficiency, by R. C. Gergle, W. T. Gregory, and C. W. Todd, Dow Corning Corporation; Further Laboratory Studies of Potential Anti-Seborrhoeic Agents, by Irwin I. Lubowe, M.D., Assistant Clinical Professor, Department of Dermatology, New York Medical College, Metropolitan Hospital Center; The Effect of Creams and Lotions on the Moisture Retension of the Skin, by Donald H. Powers and Charles Fox, Warner Lambert Pharmaceutical Company.

Lilly Digest for 1956

The year 1956 was a record breaker for retail drug stores included in the Lilly Digest Report recently released. New highs were established for nearly every important element of retail drug store income and expense. Sales were the highest ever. Gross margin, both dollarwise and percentagewise, was the highest ever. Prescription income set new records. While these achievements were welcome, the new high figure recorded for operating expenses was not so welcome. Despite the continuing upward trend in costs of operation, however, the dollar income of drug store owners who worked full time in their stores was also at a new high level. Percentagewise, was well below the record established in 1943. During that year, a period when wartime restrictions compelled all business organiza-

He divides by 3 to stretch triethanolamine dollars

(Loading superintendents put advanced methods to work)

"A dollar saved is a dollar earned." That's a rewarding axiom many Dow customers take advantage of.

One eastern cosmetic-maker, for instance, uses triethanolamine as an emulsifying agent, as well as diethanolamine and Dowanol® 50B. His requirements call for less than carload quantities, yet he buys at full tank-car prices.

It's just a matter of simple division: One of our loading superintendents makes use of a three-compartmented tank car! Thus, this one car takes on the triethanolamine, plus the two other chemicals, and carries all three to the customer at the carload quantity purchase price.

This isn't unusual. But it is typical . . . of the advanced methods and techniques that give Dow customers more for their money in many ways. For, large or small, the chemical user benefits from a forward-looking plan that is geared to tomorrow's needs . . . today. THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. GD 819S-3

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tions to cut costs and increase production, total income averaged 17.9 per cent of sales. The comparable figure in 1956 was 13.4 per cent of sales. Dollarwise, however, the comparison is quite another story. Average total income in 1943 was $8,381. In 1956, it was $14,931. The difference, of course, is the result of a 137 per cent increase in total sales.

Essay Contest to N. Y. U.

The Charles S. Welch Memorial Award for 1958 will again take the form of an essay competition for graduate students in Business Administration. This year the New York University's School of Business Administration will cooperate with the Toilet Goods Association on this contest. This has been made an actual requirement of the curriculum for the class in market research at NYU which normally has more than 100 students. The subject assigned for this year's study is: Men's Toiletries—Their Use, and Motivation of Purchase by Both Men and Women.

Professor Hector Lazo, professor of marketing at the Graduate School is in charge of the project at NYU, and Charles S. Oestreich, president of The Lander Company, is chairman of the 1958 TGA committee.

Schering Awards

Two of the three first place winners of the 1957 Schering Award Competition won similar awards for outstanding papers in 1956. They are Nathaniel Silon and Marvin Gottlieb. Mr. Silon, of Albany Medical College, Albany, N. Y., this year received a $1,000 prize for his paper on Recent Trends in Corticosteroid Therapy for Ocular Disorders; and Mr. Gottlieb, a senior at the University of Tennessee College of Medicine, this year received $1,000 for his paper on the Incodence of Various types of Cardiovascular Diseases by Age Group in the Male and Female.

Karl Agre, junior at Duke University School of Medicine, was the third first place winner and received $1,000 for his paper on Recent Advances in the Biochemical Aspects and Treatment of Mental Disease.

Three second place winners, receiving $500 each, are: Dr. H. A. Sisler, June 1957 graduate of New York University College of Medicine, for paper on Recent Trends in Corticosteroid Therapy for Ocular Disorders; James Dennis Jett and Scott Montgomery Grundy, juniors at Baylor University College of Medicine, for paper on the Incidence of Various Types of Cardiovascular Diseases by Age Group in the Male and Female; and Eric Schenk, junior at University of Washington School of Medicine, for paper on Recent Advances in the Biochemical Aspects and Treatment of Mental Disease.

British Cosmetics in 1954

The Census of Production for toilet preparations and perfumery for the year 1954 in United Kingdom has recently been released. Gross output for that year was £33,000,000, or $92,400,000. At retail levels, this would be $184,800,000. This is slightly less than one-fifth of the United States retail figure for that year of $1,086,800,000. Figures for individual classes of items produced in the United Kingdom in 1954 are: Perfumes £3,298,000 or $9,234,400, retail £6,596,000 or $18,468,800. Brilliantines £963,000 or $2,696,400, retail £1,926,000 or $5,392,800. Hair creams £3,250,000 or $9,100,000, retail £6,500,000 or $18,200,000. Soapless shampoos £2,580,000 or $7,224,000, retail £5,160,000 or $14,448,000. Face powders £2,918,000 or $8,170,400, retail £5,836,000 or $16,340,800. Face creams, cake make-ups, etc. £4,856,000 or $13,596,800, retail £9,712,000 or $27,193,600. Lipsticks £1,744,000 or $4,883,200, retail £3,488,000 or $9,766,400. Toothpaste £3,329,000 or $9,321,200, retail £6,658,000 or $18,642,400. Home permanent kits £13,000 or $36,400, retail £26,000 or $72,800. Home permanent refills £1,300,000 or $3,640,000, retail £2,600,000 or $7,280,000.

F.T.C. and Procter & Gamble

Not only a company's size, but also its dominance in certain retail fields, its merchandising and marketing ability, the extent of its advertising expenditures, its willingness to invest or gamble heavily to obtain a real foothold in the market for certain products, its record for acquiring companies largely for diversification, and other factors, are cited by the Federal Trade Commission as reasons for declaring an acquisition by a company to be illegal.

The case in point is a complaint brought against Procter & Gamble Co. declaring that the acquisition of the Chlorox Chemical Co. is illegal. The complaint states that "in 1956 Chlorox sold about 48 per cent of all household bleaches, and the number two producer sold about 16 per cent. The remaining producers—approximately 40—accounted for the balance, with no single company enjoying over 5 per cent of the market . . . . The value of the trade name Chlorox is demonstrated by P & G paying over $30 million for assets valued at about $15 million."

To support its charge, the FTC includes the following statements in its complaint:

1. The company is the second largest advertiser of all products in the country, having spent about $79 million in 1956 utilizing all media.

2. Examples of the company's ability to use advertising and promotion to gain shelf space and sell its products are: In 1953 P & G introduced a new tooth paste, Gleem, and in 1956 another one, Crest. Gleem had acquired 25 per cent of the tooth paste market by 1955, and Crest an additional 13 per cent in the first year of its production. In 1956 the company introduced Comet, a household cleanser, and within nine months this product had about 29 per cent of the market. In the latter promotion P & G gave away about 30 million Comet samples costing an estimated $3.3 million. These illustrations demonstrate the impact that P & G now can accomplish on the liquid bleach market.

3. By acquiring Chlorox, P & G increased its ability to get difficult-to-obtain shelf space since it now has a complete line of cleansing and laundry products while competitive household liquid bleach producers do not.

4. P & G has assets of approximately $726 million, annual income of about $60 million, and annual sales of approximately $1.2 billion. In addition to being first in producing soap and detergent products, the company is a major producer in other fields. These include food products (Crisco, Big Top peanut butter), toilet goods (Drene, Prell, and Shasta shampoos, and Lilt and Pin-It home permanents), and paper products

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(Charmin toilet tissue, facial tissue, napkins, and towels).

5. The company has completely-owned subsidiaries in Canada, England, Cuba, the Philippines, Indonesia, Mexico, Venezuela, and Belgium. It has grown tremendously in recent years, having increased its net worth, sales, and profit over 300 per cent since 1946.

6. In addition to constantly diversifying its operations and making new products, the company also has entered into the production and sale of additional products through acquisition. P & G acquired the following companies since 1955 in addition to Chlorox: W. T. Young Foods, Inc.; Prepared Mix Division of Nebraska Consolidated Mills, Inc.; Hines-Park Foods, Inc., Duncan Hines Institute, Inc., and Charmin Paper Mills, Inc.

Health Services Personnel

The acute problem of personnel shortages in the nation's health services is to be tackled on a scale never attempted, said Basil O'Connor, president of the National Health Council, in announcing formation of a National Commission on Health Careers to be headed by Dr. Leonard A. Scheele, president of Warner-Chilcott Laboratories.

"Lack of manpower is the basic problem throughout the health field," said Mr. O'Connor. "It poses the biggest threat not only to our present health services, but to the future progress of medical science."

The Commission, according to Dr. Scheele, will try to determine how much care is needed; how efficient existing services are, and how they can be improved; how acute the shortages are; what is the appeal of health careers and how they can be made more attractive. Also the Commission will take over and expand the activities of the Health Career Horizons Project started by the National Health Council three years ago.

A recent survey by the National Health Council revealed an over-all need for 70,000 more graduate nurses, 8,000 occupational therapists, 13,500 physical therapists, and 5,000 medical social workers.

The Commisssion's budget for the first three years is $500,000. Part of these funds have already been obtained from member agencies of the National Health Council, and the Commission hopes to obtain the balance from philanthropic foundations.

Among those named to the Commission are Eugene Beesley, president of Eli Lilly and Company; Dr. Herman E. Hilleboe, New York State commissioner of health; former U.S. Senator Herbert H. Lehman; and Sylvester L. Weaver Jr., former president of National Broadcasting Company.

Mail Price-Cutting O.K.

The U. S. Supreme Court has refused to review, and therefore upheld, the decision of the Circuit Court of Appeals for the Second Circuit which reversed a District Court ruling in a fair trade case involving mail order purchases shipped into New York at less than fair trade minimum prices. The decision of the high court means that Masters Mail Order Company of Washington, D. C. does not violate the New York State Fair Trade (Feld-Crawford) Act when it sells goods through the mail to buyers in New York at cut prices. The action had been brought against Masters by General Electric Co.

In reversing the District Court, the Appeals Court held that the sales by Masters Mail Order Company were made in Washington, where title passed and purchases were paid for, and not in New York, where the fair trade contracts were made.

Products Not French

Perfume Lido, New York, in a consent order, is prohibited from representing that domestically made perfumes are French imports and from making fictitious pricing claims, says the Federal Trade Commission. The Commission charged the company made claims such as "Design created in Paris," "Originated in France," and "Sole United States Distributor." Brand names, such as "la Vie en Rose," and "Qu'il Suffice," also implied French origin.

Dr. Dunning Honored on 80th Birthday

Dr. H. A. B. Dunning was honored by his family, friends and associates at a dinner held in Baltimore on October 24 under the auspices of the Maryland Pharmaceutical Association in celebration of Dr. Dunning's 80th birthday. Dr. Robert L. Swain, chairman of the board of trustees of the U.S.P., W. Paul Briggs, executive director of the American Foundation for Pharmaceutical Education, and Dr. Robert P. Fischelis, secretary of the American Pharmaceutical Association, reviewed the many contributions Dr. Dunning has made to pharmacy and education.

Pfizer Wins Prize for Report

Chas. Pfizer & Co. received the award for the best annual report advertisement in the chemical products industry, in the 17th Annual Survey of Financial World. The bronze "Oscar" was presented to Allan J. Greene, administrative vice-president of Pfizer October 28. It will be recalled that this was the report that was distributed as a magazine-style supplement in Sunday issues of the New York Times, The Chicago Tribune, and the Los Angeles Times with a combined circulation of over 3.5 million. The newspaper report was identical to the one mailed to the 22,000 stockholders of the company.

Fair Trade Looks to Next Year

The Bureau of Education for Fair Trade is organizing small business men throughout the country to fight during 1958 for restoration of "effective resale price maintenance to the American marketplace." Dr. John W. Dargavel, chairman of the Bureau, has called on at least 1,500 national, state and local retail and wholesale trade associations, with more than 1 million members to join the movement.

The Bureau has been occupied in drafting new fair trade legislation which would be effective at the national level, and which is intended to overcome the effects of adverse court decisions of recent years. Although Dr. Dargavel feels that enactment of the proposed bill will need "an effort far greater than that which accompanied enactment of the McGuire bill in 1952," he says, "we in wholesaling and retailing represent 10 million men, women and children . . . By mobilizing our resources—people—we can succeed in our crusade to preserve small business through a law of

fair competition which would enable the efficient small businessman to sell at a fair profit the only goods he can sell in volume, namely, nationally popular, identified merchandise—the very type which retailers with superior dollar power use as price bait to destroy their smaller competitors."

Holding over the drive for enactment of the new bill until next year when the members of Congress will be facing relection in November 1958, Dr. Dargavel comments: "It would be foolhardy prematurely to submit the bill to the consideration of lawmakers, for opportune timing might take us down the road to initial defeat. When small business is so mobilized that it can muster all of its human resources, then the issue will be joined."

Lanolin Plus to Stop Scare Tactics

The Federal Trade Commission approved a consent order prohibiting Lanolin Plus, Inc., Chicago, from representing that competitors' detergent shampoos will burn hair and from using scare tactics to induce the purchase of Lanolin Plus shampoo. The Commission says that "The agreement is for settlement purposes only and does not constitute an admission by the company that it has violated the law."

Medical Cost Increases

From 1936 to 1956 hospital room rates increased 264.8 per cent; dentists' fees increased 82.1 per cent; general practitioners' fees, 72.8 per cent; and surgeons' fees, 59.5 per cent, according to a report by a Bureau of Labor Statistics employee in the Monthly Labor Review. In the same 20-year period, medical costs have lagged behind costs for food, personal care other than medical, and clothing. The report notes: "With the higher level of living attained in 1950, relative expenditures for medical care tended to increase as incomes increased, as is usually true of items considered as 'necessities' in the family budget. The fact that this pattern has begun to appear in the spending of workers' families indicates the high order of importance they place on medical care."

College Facilities for Employees

Helene Curtis Industries has inaugurated a unique educational program for its employees which may help alleviate the serious shortage of college facilities as well as provide industry with a promising new way to improve employee performance and attitude. In cooperation with Roosevelt University of Chicago, the company is offering its employees a general college education, with credits acceptable for degrees, through courses conducted by Roosevelt University instructors in classrooms in Helene Curtis' plant. Tuition, books and materials are all paid for by the company.

Courses are open to all employees, from shipping clerks and production workers to executives. They may either take the courses for college credits toward a degree or merely to broaden their education, depending on their educational background and preference. The initial phase of the new in-plant education program got under way last month with 78 students enrolled in four courses: accounting, business administration, business law, and psychology. The selection was made by the students themselves from 13 commerce and liberal arts courses offered.

Safrol Toxicity

Another flavoring material used as long as many can remember is under investigation as to possible toxicity. The material is safrol, the principal flavoring use of which is for root beer and other soft drinks. Much after the manner of couramin, its safety has been questioned in a report to the Food and Drug Administration from a private laboratory doing work for a major food manufacturer. So last month, Food and Drug Commissioner George P. Larrick sent out a letter asking for any pertinent information that anyone might have on the subject. Also, the FDA laboratories are running tests to confirm or amplify data as to the harmful effects of safrol. A summary of the evidence submitted to FDA showed harmful results on test animals fed varying amounts in sub-acute tests. FDA tests indicated possible harmful results.

In FDA studies, rats were fed for 27 weeks on diets containing 50, 250, and 1,000 parts per million of safrol. At the highest level there were slight liver changes located centralobularly. The middle and lower levels produced no changes. "The experiment indicates that at certain feeding levels, safrol is a toxic substance," FDA says. The exact level at which toxicity occurs in the rat is not known because in all experiments reported there is the possibility that some of the safrol incorporated in the food was dissipated from the food cups by evaporation before the animal obtained it . . . . Acute studies on dogs indicate that this species is more susceptible to the toxic effects of safrol than rats. We have no data on the sub-acute or chronic effects of safrol on dogs."

WHO Approves Fluoridation

Fluoridation of water supplies has now been endorsed by an international committee of scientists of the World Health Organization. The WHO report, signed by health experts from Sweden, Great Britain, Brazil, India and the United States, declares: "The effectiveness, safety, and practicability of fluoridation as a means of preventing dental caries, one of the most prevalent and widespread diseases in the world, is now established."

The WHO report was based on a study of hundreds of fluoration programs in seventeen countries, including the United States. In addition to the U.S., fluoridation programs are currently in operation in communities in Australia, Belgium, Brazil, Canada, Chile, Colombia, El Salvador, Germany, Great Britain, Japan, Mayala, the Netherlands, New Zealand, Panama Canal Zone, Sweden, and Venezuela. Norway and Switzerland are soon to inaugurate fluoridation programs.

Nobel Prize to Bovet

The Nobel Prize for Physiology and Medicine for 1957 has been awarded to Professor Daniel Bovet of Rome, Italy. He was recognized for his work in developing a specific against allergies, and for his refinement of curare to produce muscular relaxation in surgical patients. Of Swiss origin, Dr. Bovet studied at the University of Geneva, worked at the Pasteur Institute in Paris for eighteen years, and moved to Italy ten years ago. At the present time he is working in the field of tranquilizers and says that his findings "are of great interest."

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Product Bulletin on Request.

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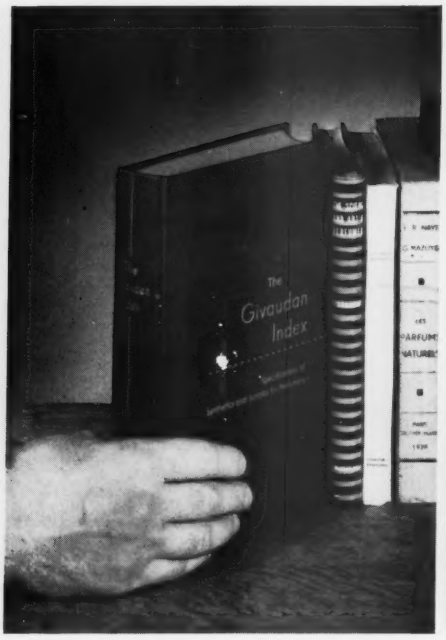

An industry guide that sets standards for aromatic materials is *The Givaudan Index*, representing years of intensive work by Givaudan analysts, chemists and perfumers.

First impressions at point of sale are important in selling a perfume or cosmetic, and Givaudan's creative skill provides odors with broad and distinctive consumer appeal.

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—Goodman and Gilman, THE PHARMACOLOGICAL BASIS OF THERAPEUTICS, Second Edition (Page 970). Published by The Macmillan Company (1955).

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Fifth Annual Symposium on Antibiotics

COURTESY LEDERLE LABORATORIES DIVISION AMERICAN CYANAMID COMPANY

The Fifth Annual Symposium on Antibiotics, sponsored by the Food and Drug Administration in collaboration with the journals, *Antibiotics and Chemotherapy* and *Antibiotic Medicine and Clinical Therapy*, was held at the Willard Hotel, Washington, D. C., October 2, 3, and 4.

Recent discoveries and advances in the field of antibiotics were reported by leading medical scientists from the United States and abroad. A total of 161 papers were listed in the program.

Several new antibiotics not yet commercially available, including sulfociden, telomycin, and pimaricin, were described.

Scientists from Czechoslovakia reported on "antibiolymphins," the so-called lymphotropic antibiotics. They have been demonstrated to have a high affinity for certain tissues in the body and to have potential value in the treatment of diseases affecting those tissues.

Several papers were presented on amphotericin, an antibiotic now shown to be effective clinically in certain difficult infections, including systemic mycoses.

Panel discussions were scheduled for afternoon sessions on each of the three days of the conference. On Wednesday, a panel concerned with rheumatic fever prophylaxis was moderated by Dr. B. B. Breese of Rochester, New York. Members of the panel were selected for their extensive experience in the prevention of streptococcal infection and rheumatic fever.

Chemotherapy of diseases affecting infants and the aged was the subject of a panel scheduled Thursday afternoon. In the very young, immunological mechanisms are immature and underdeveloped, while in the very old they may be worn out. The panel discussion on chemotherapy and host resistance was conducted by Dr. Burton A. Waisbren of Milwaukee. Several experts discussed ways and means of augmenting chemotherapy with the natural factors of resistance. Prior to this panel discussion, papers on the treatment of patients with antibiotics plus such substances as gamma globulin were given.

Dr. C. Chester Stock, of the Sloan-Kettering Institute for Cancer Research, moderated a Friday afternoon symposium on the present status of antitumor and antiviral antibiotics.

New Antibiotics

A new antibiotic has been isolated from an unidentified species of Actinomycete and named **Telomycin** by M. Misiek et al. The antibiotic, a polypeptide, is active against Gram positive bacteria.

Telomycin has been isolated by solvent extraction procedures and differentiated by chemical and physical properties from other polypeptide antibiotics.

The new antibiotic, Telomycin, is active against Gram positive organisms including antibiotic resistant strains of *Micrococcus pyogens* var. *aureus*. *In vitro* data indicate that *Micrococcus pyogenes* develops resistance to Telomycin at a slow rate.

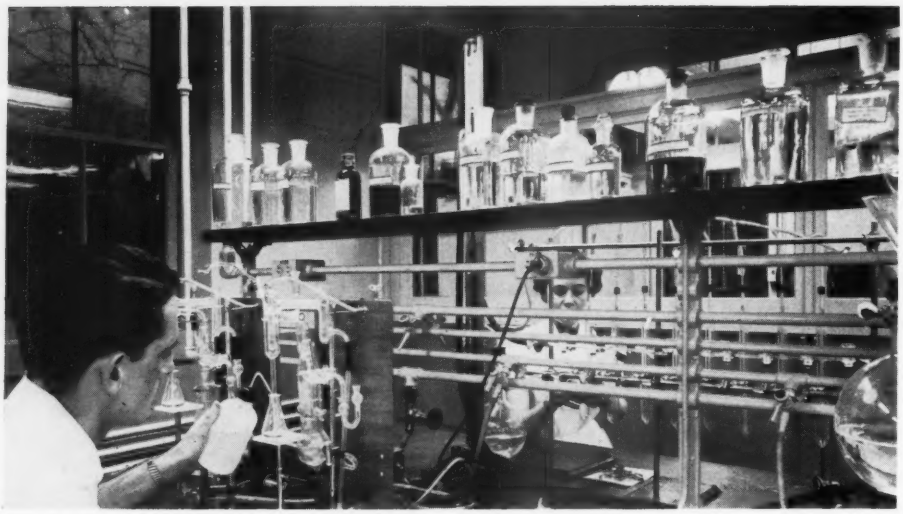
In vivo, Telomycin is effective against acute and chronic *Micrococcus pyogenes* infections in mice. It is at least as effective as penicillin in clearing kidneys of *Micrococcus pyogenes* in long term infection.

Telomycin, has been found to have an LD_{50} in mice of > 1000 mg/kg when given by the oral, intravenous, intramuscular, or intraperitoneal route. Irritation studies have been carried out in rats, rabbits, and dogs following intramuscular administration. Blood level studies in rabbits and dogs have shown that serum concentrations of 1 - 2 units are obtained during the first six hours for each mg. of telomycin given by the intramuscular route. Blood levels following the intramuscular injection of 20 mg/kg persist through sixteen hours. No oral blood levels have been obtained at the doses employed. Six weeks of subchronic toxicity studies in dogs have shown that intramuscular injections of 200 mg/day are well tolerated. The material seems worthy of clinical trial.

From the broth of a previously undescribed strain of Streptomyces an antibiotic active against gram-positive and gram-negative bacteria, mycobacteria and fungi was isolated by M. Zief et al. This material also has activity against the ascitic form of tumors in mice. **Sulfocidin** was strongly bactericidal to gram-positive bacteria. The low concentration required against most gram-positive bacteria was particularly striking.

Acute toxicity studies carried out in mature, male, 20 gm. albino mice show an LD_{50} (I.P.) of 1-5 mg./Kg.

Spiramycin adipate was given subcutaneously to 33 young male, albino rats by E. M. Boyd with 19



COURTESY CHAS. PFIZER & CO., INC.

controls receiving no drug. The LD_{50} was estimated to be 3.5 ± 0.4 (mean ± S.D.) gm. per kgm. bodyweight. The cause of death was respiratory failure associated with nephritis, cardiovascular collapse and a generalized toxemia due to subcutaneous administration of a lethal dose of spiramycin and the fulminating local skin reaction resulting therefrom.

Purified amorphous vancomycin hydrochloride preparations made by adsorption-desorption on Permutit DR, precipitation as the water-insoluble picrate, and conversion to the acetone-insoluble hydrochloride salt was deionized on a mixed bed ion exchange column. Concentration of the salt free effluent led to the crystallization of the insoluble vancomycin free base. Subsequently, **vancomycin** free base was crystallized directly from aqueous solutions and water miscible organic solvents such as dimethylacetamide or dimethylsulfoxide by H. M. Higgins et al.

Filtrates from a strain of *Streptomyces aureofaciens* have been shown by W. D. Celmir et al to contain a unique group of related amphoteric antibiotics, termed the quinocycline complex.

Two highly active components of the complex, quinocycline-A and quinocycline-B, were characterized as relatively labile primary elaboration products. Invariably, isolates of these antibiotics contained substantial quantities of their more stable and less active respective isomers, isoquinocycline-A and isoquinocycline-B.

Quinocycline-A and quinocycline-B contain a common microbiologically-active chromophoric nucleus, *quinocycline*, and dissimilar polyol moieties, compound-A and compound-B, respectively. Significantly, the generic compound quinocycline readily isomerized, with considerable loss of potency, to more stable isoquinocycline which was identical with the common acid hydrolysis product of isoquinocycline-A and isoquinocycline-B.

The components were found to exhibit a high order of toxicity for mice when administered on chronic basis. Although some members of the complex were able to offer significant protection to mice experimentally infected with tuberculosis, the chemotherapeutic index was very low.

Synnematin B, an antibiotic present in the culture liquors produced by *Cephalosporium salmosynnematin* was purified by S. A. Fusari.

N,N'Dibenzylethylenediamine N-acetylsynnematin B, showed definite but weak activity in prolonging the survival time of mice infected with *Salmonella typhimurium*. It was less active than synnematin B used at comparable levels.

A method of preparation for **anhydroquatrimycin,** an epimer of anhydrotetracycline, was described by M. A. Kaplan et al. This derivative was shown to be different from anhydrotetracycline by physical and biological properties and by circular paper chromatography.

Antifungal Antibiotics

A new crystalline antifungal antibiotic of polyene structure was isolated from the culture filtrate of *Streptomyces natalensis nov. spec.* by A. P. Struyk et al. This antibiotic is active against a wide variety of pathogenic and non-pathogenic fungi and yeast species in concentration of 1 - 10 ug/ml. There is no or negligible activity against bacteria. Daily oral administration to rats for a period of 10 weeks was tolerated well. Addition of **pimaricin** to the feed of rats either with or without tetracycline reduced the yeast count of the feces to practically zero. Clinical evaluation is in progress.

A previously described tissue culture method has been improved for evaluating antifungal agents by H. W. Larsh et al. Six systemic fungi were included in these studies. One new chemical compound, a hexane, shows promise as being an effective agent in tissue culture against various systemic fungi.

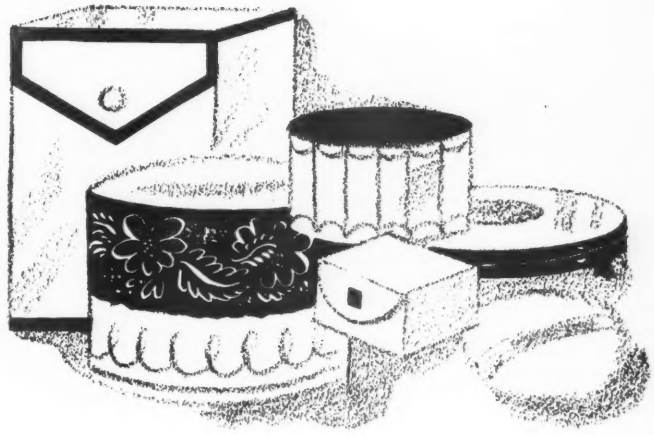
Three different strains of *Streptomyces* have been encountered whose amphoteric antifungal elaboration products, termed PA-150, PA-153 and PA-166, have been characterized as new members of the extensive polyene group of antibiotics.

PA 150 is highly active against strains of *Candida albicans* and *Saccharomyces cerevisiae*. Marked toxicity in mice by the oral or subcutaneous routes was exhi-

(*Continued on page 676*)

Face Make-up

By HARRY HILFER



Face Powders are still the most commonly used of the make-up preparations from the standpoint of the percentage of women who use it as compared to other make-up preparations. The forms in which they are used are considerably more varied at the present time than ever in the past. As recently as twenty years ago, loose face powder was by far the preferred form. The compact powder had a brief instant of glory and had already faded to a great extent, and the loose powder reigned supreme. At that time, however, new forms began to appear which have changed the entire complexion of the face powder market.

The introduction of the Cake Make-Up started a whole chain of new forms of face powder which has not ended yet. It is, therefore, interesting to trace the functional development of the new forms. Face powder originally had as its function a basic means of first artistically covering minor blemishes on the face and secondly, the addition of coloring which was missing from the individual complexion. In order to accomplish these primary functions an opacifier was used as part of the formula and coloring agents used to add the necessary color values. In addition to the most important functions mentioned, the film should also be as adherent as possible and so formulated so this application would be uniform and free from areas of greater or lessor density of film.

To achieve these objectives the loose face powder was made by using talc as the principal portion of the vehicle to which was added titanium oxide or zinc oxide or both as the opacifiers. Iron oxide pigments, which of course come in a large number of different shades, were the usual colorants. The density of the powder (and, therefore, the thickness of the applied film) was controlled by the addition of kaolin to make it heavier or the addition of precipitated chalk to make it lighter. More important than these additions was the physical mixing and grinding process, since the ultimate particle size has as great a bearing on the apparent specific gravity as do the materials themselves—the smaller the particle size the greater is the apparent specific gravity. Finally, metallic stearates—principally zinc stearate—were used to add additional slip and to incorporate an additional water repelling feature.

Grinding was effective by the use of the hammer mills and more recently by the use of a stream of compressed air, which with proper controls are capable of reducing the powder to any desired micron size. The description and methods of manufacture of face powder as described has been necessarily generalized and brief. The materials discussed are only those most commonly used and certainly other materials may have been used in specific cases as well. For example, the use of organic lakes was fairly common, though many workers frowned on their use because of their tendency to fading on long standing as compared to the iron oxide pigments, but it was also calimed that their use enhanced the color values to a greater extent because they did not seem to impart a grayish cast, which is almost unavoidable with the iron oxide pigments. The choice of different talc types, too, was important since in some cases a shinier film was felt more desirable than a dull film and vice versa. French talc was the medium used for the duller film and the Italian talc for the shinier. More recently talcs from India, California and North Carolina with their own individual peculiarities have further complicated this picture.

It was felt that the loose face powder could be improved upon, if the adherency was improved and if the film could be made uniform. The methods used to begin with was to use another product—a make-up foundation—beforehand—so that the face powder would be caused to adhere better. The cake make-up actually was an out-growth of this combination. In this instance, the powder was mixed with what amounts to a vanishing cream, and the mixture dried, pulverized and then pressed into pans in a regular compact form. This preparation had several advantages over the loose face powder. It was applied with a dampened applicator, thus forming an emulsion in which the powder was contained. Application in this form was better controlled since the film could achieve a greater homogeneity by spreading with the finger as it dried, and a greater degree of uniformity could be achieved. In addition non-volatile substances could

(*Continued on page 683*)

Pharmaceutical Emulsions*

BY JAMES L. CHEN, GILMAN N. CYR and ASGER F. LANGLYKKE,
THE SQUIBB INSTITUTE FOR MEDICAL RESEARCH

The use of emulsions in pharmacy is not new. Lard, an emulsion of water in animal fat, has been used as an ointment base since antiquity. Man-made emulsions for dermatological purposes date back about two thousand years to the days of Galen, a Greek physician, who is credited with the development of a large number of pharmaceutical preparations including the first cold cream. A number of crude drugs such as opium occur in nature as emulsions. Some pharmaceutical emulsions, such as Cod Liver Oil Emulsion and Mineral Oil Emulsion, have been included in official compendia[1] for many years.

Technological progress having given us better emulsifiers, purer raw materials, and more efficient equipment, the pharmaceutical industry is now marketing emulsified products which are effective, elegant, and stable over a long period of time under very severe storage and shipping conditions.

Present day pharmaceutical emulsions are perhaps most commonly used as dermatologic vehicles. Although drugs can be applied to the skin in a number of ways, emulsions are particularly suited to this purpose because they are usually non-greasy and non-staining; they have emollient properties, do not interfere with perspiration, and usually do not interfere with but may enhance the action of the drug.[2-6] Because of these qualities, emulsified lotions and creams are very popular. Recently aerosol foams have also been used as carriers.

With the possible exception of drugs applied for the relief of muscular aches and pains, such as salicylates, drugs applied to the skin are usually not intended to penetrate through the skin into the blood stream. Rather, their application is for purely local effect. However, penetration into, but not through, the skin is desirable. Penetration is usually a function of the lipid solubility of the drug.[7-9] The base may help or interfere dependnig on the partition between the base and the cutaneous exudates. For the treatment of wet and oozing dermatoses, creams and lotions of the oil-in-water variety are usually preferred.[10] Creams and lotions have another advantage in that they are readily removed by simple washing with water. Care should be exercised in the selection of ingredients to be used in creams and lotions, for none must be sensitizing nor primary irritants. Irritation and sensitization tests must be carried out on the finished product as well to demonstrate its safety.[11,12]

Creams and lotions used as vehicles for drugs are usually of the low oil content type and of the oil-in-water variety. They are more difficult to formulate than their cosmetic counterparts because the active ingredients which they are intended to carry may limit the choice of emulsifiers, oils and waxes. Also the formulas are often complicated by the necessary addition of materials required to protect the active ingredient.

The advent of more moisture proof containers such as the collapsible tube and the polyethylene squeeze bottle have made the distribution of creams and lotions less precarious.

Emulsions for oral use are less popular than those intended for topical application, but nevertheless they provide many advantages in pharmaceutical formulations. The palatability of a drug can often be improved by the judicious utilization of the emulsion system. Incompatible active ingredients can be separated within the same system. The emulsion system is well suited to synthetic diets of fat,[13] carbohydrate and vitamins, all in one dose. It has been shown that Vitamin A and D are absorbed to a greater extent when administered in dispersed form in aqueous media.[14-16]

There are seldom any contraindications for the use of emulsions orally. It has been reported that the emulsification of oils and fats has little effect on absorption in normal conditions.[13,17] The absorption of a drug dispersed in an emulsion system is probably affected by partition as well as the absorbability of the drug per se, so each product must be evaluated.

The administration of fat by parenteral infusion has been done successfully by a number of investigators.[18-21] However, this dosage form is limited and not of any significant commercial importance. The avoidance of large oil globules which might create an

*Presented at the Symposium on Emulsions, Theoretical and Applied, Division of Colloid Chemistry, American Chemical Society, 131st National Meeting, Miami, Florida, April 11, 1957.

embolism is difficult. Toxic manifestations from the emulsifier or from breakdown products of the oil have been encountered. Emulsions are difficult to sterilize, the presence of foreign particles is difficult to detect and the complete elimination of pyrogens is troublesome.

Clear, transparent emulsions which are in fact colloidal dispersions of active ingredients are sometimes used by injection.[16] Here it is important to ascertain that the active ingredient does not separate when the injection is diluted in blood or serum. Also, the pharmacological and toxicological characteristics of the solubilizer must be thoroughly understood before its use is undertaken.

Formulation Problems

General. As is the case with most emulsions, pharmaceutical emulsions are complex systems comprising a dispersed phase, dispersion medium, emulsifier, stabilizer, preservative, etc. Almost all contain a specific active ingredient. The nature of the active ingredient and its intended mode of administration dictate the selection of the proper vehicle. High concentrations of strong electrolytes are usually not well suited to emulsions. The increased density of the aqueous phase results in a greater tendency to creaming and phase separation. The high salt concentration limits the solubility of the emulsifier and stabilizer. However, stable emulsified creams and lotions containing 20-25 per cent of an antiperspirant have been made. Water-in-oil ointments containing 30 per cent salt in the dispersed phase have also been made.

On the other hand, Mineral Oil and Cod Liver Oil can be ideally presented to the patient in emulsion form. Furthermore, oil-soluble, water-insoluble drugs are also well suited to emulsions. A solution of the active ingredient is made in a suitable oil and this solution emulsified according to the usual procedure. This type of formulation is particularly desirable when the active ingredient must be taken orally but has an objectional odor or taste.

A viscid emulsion such as a lotion or a cream is often a good suspending medium for insoluble drugs for dermatological use. For example, most of the corticosteroid lotions on the market today are suspensions of the steroid in a lotion vehicle. When antibiotics are added to these products they are either dissolved or suspended in the aqueous phase. The emulsifier may act as a solubilizer for low concentrations of water insoluble antibiotics such as gramicidin or tyrothricin. This solubilization guarantees homogeneity.

Selection of Materials. Although there are literally thousands of surfactants available, relatively few are used in pharmaceuticals because of the many limitations placed on their selection. Also, the consumption of surfactants in the pharmaceutical industry is small in comparison with other industries. The total surfactant consumption in this country for 1955 has been estimated at slightly over one billion pounds.[22] Of this total less than 2 million pounds were used by the pharmaceutical and cosmetic industries combined. The annual consumption by the pharmaceutical industry probably amounts to less than half a million pounds, and not all is intended for emulsions.

Representatives of all types of emulsifiers are used in pharmaceutical emulsions.[23 26] Anionic, cationic and

(*Continued on page 685*)

Oil of Vetiver "Bourbon"

By STEFFEN ARCTANDER

PERFUMERY RESEARCH & DEVELOPMENT DEPARTMENT,
COLGATE-PALMOLIVE COMPANY, JERSEY CITY, N. J.

Planter and distiller, Monsier Henri Le Merle with a bunch of Vetiver rootlets, recently cut.

A view of the main street in Saint-Denis, capital of Reunion.

A Vetiver field during the harvest.

Vetiver grass has been known since antiquity in India, where the roots were used as a perfume, a spice, in medicine, as a fibrous material for mats and house-roofs etc. From Indonesia, more exactly from Java, the grass was brought to the small island of Reunion during the nineteenth century, probably even earlier. The roots of vetiver are highly fragrant, and serve moreover in their country of origin for the preserving of furs and woolen garments against the attacks of insects. The word "vetiver," also spelled "vetivert," derives from the Tamoul word "vettivern." The Tamouls are the inhabitants of the island of Ceylon and of the South of India, facing this island. The vetiver grass is found here mostly wild, but also semi-wild, and recently also cultivated for the purpose of distilling essential oil from its rootlets.

As it is often the case with the production of essential oils, the center of production of vetiver oil has moved during the last decades, although certain other essential oils have changed their habitat much more. The annual production of vetiver oil in Reunion island, formerly called "Bourbon" island, has now reached 30 to 35 tons, and can probably be increased further. This corresponds well to the quantity produced in Java in the years before World War II. The Reunion production is, however, rather flourishing, due to the capricious climate in these regions. In 1944, the production was 30 tons, in 1948 only 11 tons, of which more than 90 per cent went to France. In the same year, Haiti exported 10 tons to the U. S. Java does not produce such quantities now, and it remains doubtful, whether Java will ever regain its position as producer of importance. One is tempted to compare this situation with that of ylang-ylang "Manila," which is no more the "big name" in ylang-ylang oil.

The vetiver grass has other missions than those of supplying the perfume industry with a root, from which we can distil an important raw material. The grass is often planted on the slopes, escarpments and mountainsides to anchor the soil against erosion during the torrential rains, also to border the roads, etc.

It was the Arabs who, first of all, imported the vetiver root to Europe, together with shipments of

other perfume plants and spices from India and the Far East. But in Reunion island, all vetiver grass is cultivated, (and moreover) mainly for the purpose of distilling vetiver oil from the rootlets. This distillation is carried out on the spot, and the export of vetiver oil belongs to one of the more important sources of income for Reunion (Bourbon) island. With its 1,000 square miles, of which less than one third are cultivatable, Reunion has no large plantations of perfume plants, but vetiver is cultivated in a multitude of small estates. We do find, here and there, cultivation on fairly large estates. As the interior of the island is volcanic, very mountainous and somewhat arid, we find the majority of the gardens and plantations along the coastline. The vetiver plantations are situated on the east, southeast and south coast, where the climate and the soil seem to present the best possible conditions of growth for this grass.

The vetiver grass is a plant of great vitality, but it exhausts the soil to a heavy degree. As a sort of compensation, the ashes from roots and plants, which have been burnt in the fireplaces of the stills, are distributed as fertilizer on the vetiver fields. This is another complete cycle for a natural product.

During my visit in Reunion I was guided by car by Monsieur Paul Isautier from the Barbot House. A letter of introduction from my Paris-friend, Henri Laporte of the C.F.P.A.C., prepared a cordial welcome for me and opened the doors for a thorough study of the perfume plants in "Bourbon" island. My very first excursions were aimed at the vetiver fields near Saint-Pierre.

It is not only the place of cultivation which plays a decisive role as to whether the vetiver oil produced will be of a good quality or not. For vetiver oil, the special situation is, that the customers for generations have accepted, first the vetivert oil from Java; later, they accepted that from Reunion, called "Bourbon," and now we find several other qualities on the market. These are more often characterized as being inferior, a question to be discussed. It is a fact that they are different, and this is sufficient to scare away some clients who have, probably, during many years, been dependent upon the specific effect which they found only in the vetiver oils from the "old" places of production.

How does it happen that there is a difference? The experts are, until now, unanimous that the main cause is found in the fact that Reunion (apart from the production in Java, which has been very small since 1942) produces the vetiver oil in relatively primitive stills, incapable of supplying high steam pressures, and for this reason, demanding a special know-how and technique of distillation. This technique is highly developed among the planters and distillers in Reunion, who through generations have obtained this know-how, as it is acquired only through one's own experiences and one's ancestor's experiences, bitter ones, errors and successes.

It has been postulated, that vetiver oil, distilled in

(*Continued on page 689*)

Close-up of the grass.

A close-up of the rootlets (foreground) and the main stem to be replanted.

Vetiver field in Reunion. Main roots are lined up before being replanted. Vetiver grass in the background.

Taking The Doctor's

By J. L. HUCK, JR., DIRECTOR OF PRODUCT DEVELOPMENT, ROCHE LABORATORIES, DIVISION OF HOFFMANN-LA ROCHE, INC.

The physician needs antibiotics, vitamins, antitussives and other drugs depending on the disease or condition he is treating. But, he has a wide range of brands from which to choose. Frequently, his choice is directed by his personality rather than by therapeutic considerations. As Ernst Dichter stated in his studies, the physician tends to use those products which enhance his self-concept and avoid those products which conflict with his self-concept. For example, some doctors want to be the first to use a new product; others prefer to wait until it is well established. Some prefer to use the most potent product on the market; others will stay with the safest product. These are things we need to know in order to become *physician oriented instead of product oriented in our promotion.*

The good salesman makes a constant study of each doctor he calls on. He makes it a point to discover the doctor's problems and his needs. He also does his best to understand the doctor as a person so he can establish rapport with him. *In my opinion the most effective sales presentation is one which focuses on the doctor's problems rather than on the salesman's product.* This is what I call the human approach to selling.

But, what can we, who do not call on doctors, know about him as an individual? Even if we recognize that each doctor is an *unique individual,* how can we effectively appeal to 120,000 physicians through a journal ad or via direct mail?

Promotion through mass media, such as direct mail advertising and journal advertising, by necessity must ignore the differences between individual doctors and concentrate on their similar interests and personality traits.

Fortunately for us, people are attracted to occupations which fit their own personalities and aptitudes. Furthermore, those engaged in a specific occupation tend to adapt to it or move to more congenial types of work. Each job has its own requirements with respect to aptitudes and personality. Thus, most people who are happy and successful in their work have the required aptitudes and personality traits to a large degree.

What does this mean to us? *It means that physicians have many similar personality traits.* If we know what these are, we can use this information in the promotion of our products.

Personality is a very complex thing. However, because we are interested only in the practical applications of psychology to marketing we can deal with this subject more superficially than can the psychologist.

*Before the Pharmaceutical Advertising Club, New York, September 12, 1957.

It is very likely that physicians in one type of practice differ markedly from physicians in another field of medicine. For example, there are noticeable differences personality-wise between medical researchers, general practitioners and surgeons. Therefore, let us examine the general practitioner who comprises our largest market.

My own observations, which are in agreement with limited psychological studies, suggest that general practitioners share the following characteristics. They are:

1. Conservative
2. Altruistic
3. Comfort minded
4. Independent.

This personality profile by no means applies to *all* general practitioners, but it probably fits most of them. Thus, it gives us a clue to the *wants* of most general practitioners so we can pinpoint our advertising to his interests.

To be more specific I will try to point out how each element of his personality determines his response to products, advertising and sales promotion.

1. CONSERVATIVE

The typical general practitioner is a careful man. He prefers to avoid risks and will not take a chance unless absolutely necessary. As a result, the general practitioner does not want to be the first to try a new drug. He prefers to wait until the drug has been reasonably well established. He also wants to be assured that the drug he is using is safe before he prescribes it. This is the reason why it is so important to have the use of new drugs carefully documented by extensive clinical work. It has been my experience that the general practitioner does not study reprints of clinical studies carefully; he just wants to know that extensive work has been done and that the drug has been proved safe. The general practitioner's desire to use a safe drug has been rather well demonstrated by the success of Gantrisin. There are a number of other antibacterial agents on the market which are highly effective too, but it has been the freedom from serious side effects which make this product the number one sulfonamide on the market.

The general practitioner also prefers drugs which are familiar to him and which are not too complicated. It takes a great deal more effort to get him to use a product which is a complete departure from the type of therapy with which he is familiar or which is difficult or complicated to use. A few years ago, we brought out a product that had an extremely complicated dosage

Personality Pulse*

schedule. Because there were other similar products on the market which had a much simpler dosage schedule, our promotion of this product did not succeed. Although clinical evidence showed quite conclusively that this product was superior in many respects to competitive products, the general practitioner did not want to take a chance with the complicated dosage schedule. Therefore, it is well to keep in mind that a simple and exact dosage schedule should be presented to the physician so that it doesn't seem too difficult for him to use this product in his practice.

Because the general practitioner is so cautious and conservative in his use of drugs, we find him to be rather indecisive about his choice of new drugs and he puts off making a decision as long as he possibly can. As a result, although low-pressure, conservative advertising and selling is most effective with the general practitioner, our product has to be presented to him in a very positive manner. He needs constant assurance that he is making the right decision by prescribing our products. Thus, repetitious continuity is of utmost importance when introducing a new product. It takes many journal ads, many direct mailings and frequent calls by the pharmaceutical salesmen before the majority of general practitioners will begin to regularly prescribe a new product.

2. ALTRUISTIC

I have heard it said that doctors go into medicine to make money. Undoubtedly, this is part of their motivation. However, there are plenty of other ways to make money which require less training and offer more pleasant working conditions. So, we still come back to the question, "Why do doctors choose medicine as a way of making money instead of becoming salesmen, Wall Street financiers or professional gamblers?"

My contacts with more than a thousand physicians during the past nine years convince me that most doctors chose their profession because of a sincere desire to help others. One of the important satisfactions he gets from his work is making people well. Even though he is truly altruistic, he also enjoys the opportunity he has to manipulate people. Although he likes to help people, he wants to decide how they should be helped. If any of you have had the opportunity to visit a general practitioner as a patient, you will know what I mean. Not only does he treat your illness, but if given half a chance he will tell you how to run your entire life. This gives me the impression that the physician likes to help people because it makes him feel very important. The prestige of his position is one of his most important motivations.

What does this mean to us in our promotion to the physician? It means that the general practitioner has very little interest in our product. *He is concerned with its chemistry, the pharmacology and who makes the drug than what the product will do for his patients and for him.* When I was a salesman in Nebraska, I always found it more effective to talk to the doctor about his patients and his treatment of the patient rather than my drugs. I knew that if I could get him thinking about a particular patient who would benefit from my product or if I could help him solve an annoying problem which he currently faced, that he was more likely to prescribe my product.

3. COMFORT MINDED

The typical general practitioner is an easy going, relaxed individual. He likes comfort and prefers harmonious relationships which give him an opportunity to express his altruistic tendencies. He projects his desire for comfort to all his patients and therefore their comfort is important to him. If a product is easier to inject, easier to swallow, quickly relieves pain or in some way adds to the patient's comfort, these are points to stress in advertising and sales promotion. I have seen many incidences where this point has been proved. General practitioners are quick to use narcotics or other analgesic agents to relieve a patient's pain. This is in contrast, for example, to the urologist who is convinced that he can cystoscope a patient without the aid of any drugs to relieve the discomfort and

(*Continued on page 694*)

Anti-Seborrheic Agents*

By IRWIN I. LUBOWE, M.D. CLINICAL ASSISTANT PROFESSOR, NEW YORK MEDICAL COLLEGE, METROPOLITAN HOSPITAL CENTER

There has been a recent relative increase of seborrhea capitis both in the male and female. The pathogenesis is related to disturbances of the function of the pilo-sebaceous apparatus. The associated causes are, hormonal imbalance, impaired metabolism and nutrition, biochemical changes of cutaneous tissues of the scalp, increased bacterial flora, and the incautious use of mild irritants and sensitizers.

The hormonal imbalance is related to disturbed physiological relationship of androgen to estrogen, with increase of androgen. The impaired metabolism and nutrition are frequently associated with decreased activity of the thyroid and inability to normally assimilate excessive carbohydrate intake. The biochemical changes may be due to altered pH, decreased circulation, and injurious effect of unsaturated lipids of sebum, damaging the sulfhydryl compounds of keratin, by liberation of hydrogen peroxides. This above theory has been advanced by Flesch, Morelle, and Juon.

In the normal activity of the epidermis, there is an accumulation of a fine microscopic film which is invisible. This process is continuous unless there is introduced a constitutional imbalance due to previously mentioned causes. When there is an impaired keratinization, the accumulation of epidermal scales and debris become visible. With the increased production of these scales, there is an accelerated growth of secondary bacterial invaders as, staphylococcus aureus, albus, and pityrosporum ovale. With a superimposed infection there occurs a folliculitis of the scalp which is usually traumatic and due to scratching; an eczematous dermatitis may then be precipitated.

The increase in seborrhea capitis is also probably due to the incautious use of the thioglycollates, hair dyes, hair lacquers, and the frequent use of salts of the fatty acids in shampoos.

Reddish,[1] Klauder,[2] Lubowe,[3] and Spoor[4] have reported the preponderance of staphylococcus aureus, albus, and pityrosporum ovale following cultural studies of the scalps of seborrhoic patients.

Pipkin,[8] found a large number of cases of refractory scaling of the scalp which had no reaction to the use of anti-seborrhoeic therapy, and noted that after culturing the scales of the scalp that the causative agents were fungi. Occasionally, x-ray therapy was prescribed in order to clear these conditions.

In this paper, which is confined to the topical therapy of seborrhea capitis, it is advisable to remember that the constitutional and somatic factors are not being treated. The dermatologist must prescribe for these alterations as their proper care belongs to his province.

In conducting an evaluation of an anti-seborrhoeic formulation, the investigator must also recognize the role of the factors of climate, humidity, andnatural ultra-violet light upon the physiological effect of keratinization of the epidermis during the projected study. It should be appreciated that the application of external remedies for the treatment of seborrhea capitis are prophylactic in the relief of the disease and its accompanying symptoms; and are not curative if physiological disturbances are present.

To evaluate a potential topical anti-seborrhoeic agent, it is advisable to correlate laboratory findings with clinical studies. First, bacteriological assays are run to determine inhibitory effects against the significant organisms. Following favorable response of the experimental chemical; patch testing and Draize eye tests are performed to eliminate epidermal and ocular toxicity. The next step is the clinical interpretation of its effectiveness in the relief of symptoms and pathology associated with seborrhea capitis.

Slinger,[5] Finnerty,[6] and Lubowe,[7] have previously reported respectively on the comparative effectiveness of a selenium sulfide suspension, a sulfur salicylic acid and hexachlorophene detergent combination; and a benzopyram formulation.

Ball,[9] has reported that the beneficial results of Vancide 89 in combination with quaternary amine in the treatment of seborrhoeic dermatitis of the scalp. Vancide has been used as an agricultural fungicide for many years.

After a careful study of the methods being utilized in the local treatment of seborrhea capitis, it has been determined that there exists four methods of application and utility of anti-seborrheoic preparations.

1. The pre-shampoo application in which a detergent keratolytic is poured on the scalp and remains in situ for five to twenty minutes. The preparation is then removed by shampooing with neutral soap or detergent.
2. The medicated shampoo which contains active ingredients as sulfur, salicylic acid, resorcinol, hexachlorophene or bithionol dispersed in shampoo. This medicated shampoo is applied and left on the scalp from five to thirty minutes. It is then removed by the addition of water, producing active lathering of the previously applied shampoo, with subsequent removal of the medi-

*Paper delivered at the meeting of the International Society of Cosmetic Chemists, Paris, France—July 30, 1957; Geneva, Switzerland—August 5, 1957.

cation.

3. The antiseptic scalp lotion which may contain antiseptics and stimulants, as resorcinol, monoacetate, chloral hydrate, tincture of capsicum, tincture of cantharides, vancide and sarthionate. These scalp lotions may also be used as hair dressings.
4. The after shampoo rinse is dispersed into the scalp after completion of a shampoo. It is not washed out after the application. The rinse usually contains a quaternary ammonium compound, as benzalkonium chloride.

Goldzieher,[10] and Shapiro,[11] have studied the topical application on the scalp of estrogen preparations for the treatment of itching, scaling, and associated hair fall. The former utilized concentrations ranging from 1.5 to 3.0 mg per 100 cc of a lotion in an aqueous alcoholic base. Shapiro, in his clinical investigations, supplied estrone lotions which were more concentrated. His preparation contained 1 mg. of sodium estrone sulfate per cc in 70 per cent alsohol. They advised that the topical estrogen preparation can control the symptoms of scaling, scurf, itching, and hair fall.

Flesch,[12] suggests that water soluble components of the keratin layer affect the formation of epidermal scales. Free amino acids play a significant part and are usually diminished in scale formation.

The daily application of an estrogen amino acid emulsion has been used to neutralize the untoward effects of the excessive androgen secretion upon the pilosebaceous apparatus, and to favorably condition the scalp.[13] It was found to be effective in the management of 80 per cent of the patients affilicted with seborrhea capitis and associated disorders.[14]

Wells,[16] has emphasized the necessity for close and continuous scientific collaboration between the laboratory, the cosmetic chemist, and the dermatologist in the production of medicated cosmetics.

In a recent article, we suggested the following requisites for potential anti-seborrhoeic agents.

1. Bactericidal against staphylococcus aureus and albus.
2. Laboratory inhibition of pityrosporum ovale.
3. Keratolytic action, to remove excessive keratinaceous material.
4. Penetration of the epidermis inducing pilofollicular cellular activity.
5. pH in 5.0-7.5 range.

With clinical usage on the scalp this potential therapeutic agent should reduce scaling, crusting, and the itching of the scalp. Reduction of hair fall may result if the hair fall is associated with the seborrhea capitis. In a recent evaluation, we observed that improvement of the seborrhea capitis with subsequent production of a clear scalp resulted in diminished hair fall. However, upon the discontinuance of the therapeutic regime, the seborrhea capitis and associated hair fall may recur.

In this study, a project was instituted to bacteriologically assay twenty chemical compounds. They were chosen because they were designated as either commercial or experimental antiseptics, pesticides, insecticides, or fungicides. The organisms selected for inhibitory study were pityrosporum avale, staphylococcus aureus, staphylococcus albus, and microsporum lanosum.

Regarding the test organisms used, the Pityrosporum ovale No. 1 was secured from the American Type Culture Collection as Specimen No. 7253. The Pityrosporum ovale No. 2 was also secured from the A.T.C.C. and was Specimen No. 7132. The Microsporum lanosum was secured from the Bird S. Coler Memorial Hospital from the fungus research laboatory. The Staphylococcus aureus was from the A.T.C.C.; Specimen No. 9144 and the Staphylococcus albus was from the A.T.C.C.; Specimen No. 151.

The Staphylococcus aureus and Staphylococcus albus were grown on blood agar, the Pityrosporum ovale and Microsporum lanosum were grown on Wort agar and Saboraud agar. Occasionally, to speed up the rate of growth, the cultures were maintained in an atmosphere of 10 per cent carbon dioxide.

The laboratory technique was the Cup Plate assay; and the inhibition zone was measured in millimeters. A zone from 10 to 24 millimeters was considered bactericidal.

Following is a tabulation of twenty compounds that were studied in this project. They are listed according to code number, chemical formula, commercial name and zone inhibition against staphylococcus aureus,

(*Continued on page 674*)

Negro Cosmetics*

By MARVIN K. COOK
CONSULTING CHEMIST, NORMAN APPLEZWEIG ASSOCIATES

1950 Census figures list the total Negro population in the United States as 15,042,286. In a 1953 BBD & O. survey conducted in Memphis it was stated that while Negroes constitute only 39 per cent of the population, they account for cosmetic purchases as follows:

54.4% deodorants
54.8% face powders
54.5% hand lotions
50.8% face creams
34.5% lipsticks
20.8% shampoos

There is a growing awareness of the fertile green pastures in the Negro cosmetic market and it has been estimated that well over $400,000,000 a year is spent in this area alone.

Hair preparations comprise by far the most important group of fast-moving cosmetics in the Negro market. The tremendous demand for hand lotions is ascribable primarily to the fact that Negroes are heavily over-represented in factory labor and in menial service. There is some evidence, based upon comparative sales of one manufacturer, that dry scalp and dry skin conditions seem generally prevalent among Negroes and the most successful are those which have been adjusted to contain a higher oil content.

Hair preparations are quite numerous and specialties such as pressing oils, hair straighteners and pomades are an exclusive market for manufacturers of Negro cosmetics.

Pressing Oils

These products are basically perfumed petrolatum, mineral oil, lanolin and wax compositions usually tinted yellow or green. They are used in conjunction with a hot comb or iron for the purpose of "pressing" the hair straight. The oil-soluble, low viscosity silicones have proved useful in preparations of this type to minimize singeing and in further conditioning the hair.

Pressing oil — General Formula 1	
Mineral oil	13.0%
Lanolin	5.0%
Petrolatum	82.0%
Perfume	q.s.
Color	To suit
Pressing oil — General Formula 2	
Mineral oil	10.0%
Lanolin	5.0%
Petrolatum	82.0%
555 Silicone fluid (Dow-Corning)	3.0%
Perfume	q.s.
Color	To suit

Pressing oils provide only a temporary means fo straightening hair and the effect is often lost when the hair gets wet, as in swimming. This may be, in part, overcome by the use of water-repellants, like silicones.

*From a forthcoming book by Joseph Kalish and Marvin K. Cook.

Courtesy of Rose Morgan's House of Beauty

Moreover, they produce a rather slick look on the hair which is not cosmetically desirable.

Hair Straighteners (Processing Creams)

These products may vary considerably in composition but comprise essentially either caustic or thioglycolate-based preparations. Either type has its advocates and opponents as regards irritation, safety, speed of operation and lasting anti-kink properties. In sales, lye straighteners take precedence over thioglycolate-based products in the male Negro market. One of the leading manufacturers of lye-based hair straighteners has received a remarkably small number of reported skin irritation complaints over a ten-year period. During this time, millions of jars of straightener were marketed and a careful investigation of the negligible number of complaints revealed in most instances a previous history of scalp disease and in some cases, improper use. This is by no means a stroke of luck; it is more probably a measure of the technical know-how and care that goes into the creation and manufacture of this specialty.

In the absence of specialized technical knowledge and experience, it is extremely difficult, dangerous and perhaps virtually impossible to develop a top-notch hair straightener. This should serve as a word of caution to those who would enter this lucrative market without proper technical assistance and experience in this special art. There are no suitable laboratory methods for acertaining the effectiveness of a straightener; human subjects provide the only means of evaluation. In order to emphasize further the manifold problems connected with the formulation of a straightener, particularly caustic types, it is worthwhile to pause and review the requirements for manufacturing a commercially-acceptable product.

First of all, the product must have good color, odor and texture. Most perfumes deteriorate rapidly in highly-alkaline media, often producing off-odors and color changes. Since the introduction of an electrolyte such as lye destroys otherwise stable cosmetic emulsions, the solution on first consideration is to employ emulsions based upon non-ionic emulsifiers. Experience has demonstrated repeatedly the difficulty in forming a stable cream with non-ionics at very high pH. The selection and balancing of the ingredients and mode of manufacture all are extremely critical.

Other considerations are that the product must be firm enough to keep the hair straight during the treatment and yet soft enough to allow for easy combing and rinsing. No sting should be experienced during the first 7 minutes after application. Rinsability must be very good so that lye is released promptly on contact with water.

The scalp is usually saturated with a protective petrolatum mixture before the application of the straightener. The straightener must therefore have controlled penetrating properties so that it will act on the hair rather than the scalp. In caustic preparations, the sodium hydroxide concentration must not exceed 5 percent and 0.5-3.0 percent is about average for commercial preparations. The hair should not revert back to its original kinkiness for at least one month. Some thioglycolate-based hair straightening manufacturers claim that their preparations de-kink for 4-6 months;

(*Continued on page 694*)

A NEW Lubricating Jelly*

By GERHARD LEVY and T. W. SCHWARZ

Lubricating jellies are employed in medical practice to overcome the effects of friction. When applied to instruments, rubber gloves or catheters, the jellies reduce the friction that occurs between the surfaces of these devices and mucous membranes. In this manner, lubricating jellies may reduce pain and tissue injury and will facilitate instrumentation.

Lubricating jellies must be water-soluble, non-irritating, easily spreadable and of high lubricating capacity. They should not contain greases or oils because these may be harmful to rubber, or other water-insoluble or non-metabolizable components that may cause foreign body reactions.

The ideal lubricating jelly should be transparent to afford a clear view of the area to which it is applied. It should adhere well to instruments and rubber gloves and resist to being "washed away" by body fluids. This "retention" property is difficult to quantitate but it is readily perceived: for example, when sodium alginate jelly and methylcellulose jelly are separately applied to the skin and the area is gently rubbed with amply wetted fingers, the methylcellulose jelly provides better and longer-lasting lubrication.

Lubricating jellies must possess a sufficiently low viscosity to facilitate ready extrusion from collapsible tubes and easy spreading, without being too fluid. Some jellies have the undesirable tendency to drip from surfaces to which they are applied; this can be troublesome, especially during surgical procedures.

A jelly that will resist dripping, yet be sufficiently fluid, must have a rheological property termed "yield strength." Systems that have yield strength will not flow† until the stress applied to them exceeds a minimum value, the yield value.[1] This is in contrast to the behavior of "Newtonian" systems such as glycerin or mineral oil and "pseudoplastic" systems, where the application of any stress causes flow.

Most gums used in the preparation of water-soluble jellies have pseudoplastic flow properties, i.e. they have no yield strength. Jellies made from such gums will flow due to the stress resulting from their own weight; in other words: they will drip. The dripping tendency of jellies that have no yield strength may be reduced by increasing their viscosity since the rate of flow at a given stress is inversely proportional to the viscosity. Increasing the viscosity will, however, reduce the spreadability and make extrusion from tubes more difficult. Therefore jellies should have yield strength.

Lubricating jellies are frequently used in surgical procedures where sterility is required. Most thickening agents, especially the natural gums, are extremely heat-sensitive and become irreversibly hydrolyzed or depolymerized on heating. This has caused most manufacturers of jellies to rely upon aseptic procedures and so-called "cold sterilization" with antibacterial

*This study was conducted at the University of California School of Pharmacy in part under a contract with the Armed Services Medical Procurement Agency and presented to the Fourth Pan-American Congress of Pharmacy and Biochemistry in Washington, D. C., November 1957.

†The term "flow" as used here refers to laminar flow.

agents such as the mercurials. It has been recently reported[2] that thickening agents may appreciably reduce the effectiveness of various antibacterial agents. Since the most reliable sterilization process is autoclaving, it would be highly desirable to formulate a jelly whose components are heat-stable so that it will withstand autoclaving.

Natural gums exhibit variations in thickening capacity and perhaps in stability with each different lot of the same gum. On the other hand, the physical properties of synthetic thickening agents can be better controlled.

A major consideration in the formulation of a lubricating jelly is stability on aging. Most natural gums are known for their lack of stability on prolonged storage; the hydrolysis of depolymerization that occurs causes liquefaction which makes the jelly useless. In general, synthetic thickening agents are more stable than natural gums.

The water-soluble lubricating jelly which is described in this paper was developed on the basis of the foregoing discussion. It consists of synthetic ingredients rather than natural gums; it contains a thickening agent with high yield strength; it is heat-stable and can therefore be sterilized by autoclaving; it showed exceptional stability during storage tests; it is transparent and it has bacteriostatic properties. The jelly consists of the following ingredients:

Methocel 90 HG 4000®	1.0 Gm
Carbopol 934®	0.3 Gm
Sodium Hydroxide, USP	q.s.pH 7.0
Propylene Glycol, USP	20.0 ml
Methylparaben, USP	0.15 Gm
Propylparaben, USP	0.05 Gm
Distilled Water	q.s. 100.0 ml

The total solid content of this jelly is only 1.5 per cent which minimizes the formation of a residual film.

Preparation:—The Methocel 90 HG 4000 is slowly added to 40 ml of hot water (80-90°C.) which is rapidly agitated for about five minutes. After cooling, the solution is stored overnight in a refrigerator.

The Carbopol 934 is dissolved in 20 ml of distilled water by rapid agitation. After a short period during which the solution is permitted to stand so that most air bubbles may rise to the surface, a 1 per cent solution of sodium hydroxide is slowly added while the solution is stirred cautiously to avoid incorporation of air. Sufficient sodium hydroxide is added to obtain a pH of 7.0 (about 12 ml are required) and then distilled water is added to make a total volume of 40 ml.

Methyl- and propylparaben are dissolved in the propylene glycol. The Methocel 90 HG 4000, Carbopol 934 and paraben solutions are then mixed together carefully in order to keep occlusion of air to a minimum.

Methocel 90 HG 4000 is a high viscosity hydroxypropylmethylcellulose produced by the Dow Chemical Company. This compound has a higher gel point than regular Methocel 4000, which lacks the hydroxypropyl substituent. Methocel 90 HG 4000 is less likely to precipitate from aqueous solutions at elevated temperatures. The lack of toxicity of Methocel HG was demonstrated by oral administration of this compound to healthy young adults[3].

Jellies of methylcellulose alone or of its derivatives are markedly resistant to being "washed away" by water from surfaces to which they have been applied. Unfortunately, these jellies are quite tacky and tend to drip freely. They will form a characteristic white froth when rubbed into the skin.

Carbopol 934 is a product of B. F. Goodrich Chemical Company. It can be regarded as a carboxylic polymer of high molecular weight. Aqueous dispersions of the acidic polymer form clear gels on being neutralized with a suitable base[4]. These gels have a high yield strength[5] and are non-sticky and "short," perceptionally speaking. Carbopol 934 gels have little body and little retention property, but their high yield strength and their lack of stickiness have been utilized in our jelly formula to eliminate the excessive tackiness and dripping tendency of Methocel 90 HG 4000. Carbopol 934 is neither a primary irritant nor a sensitizer and it has been clinically tested over a period of several months with no deleterious effects.[6]

Propylene Glycol has been widely used as a humectant and lubricant. Experiments with the "lubrimeter," an instrument that measures the lubricating property of medicinals,[7] indicate that propylene glycol has at least as much lubricating capacity as glycerin. Propylene glycol raises the gel point of methylcelluloses while glycerin has the opposite effect.[8] The presence of propylene glycol prevents possible haziness of the jelly at elevated temperatures. It also retards the characteristic frothing of methylcellulose, its solvent action being greater than that of glycerin.[9]

Propylene glycol has the further advantage of possessing a specific inhibitory effect against bacteria

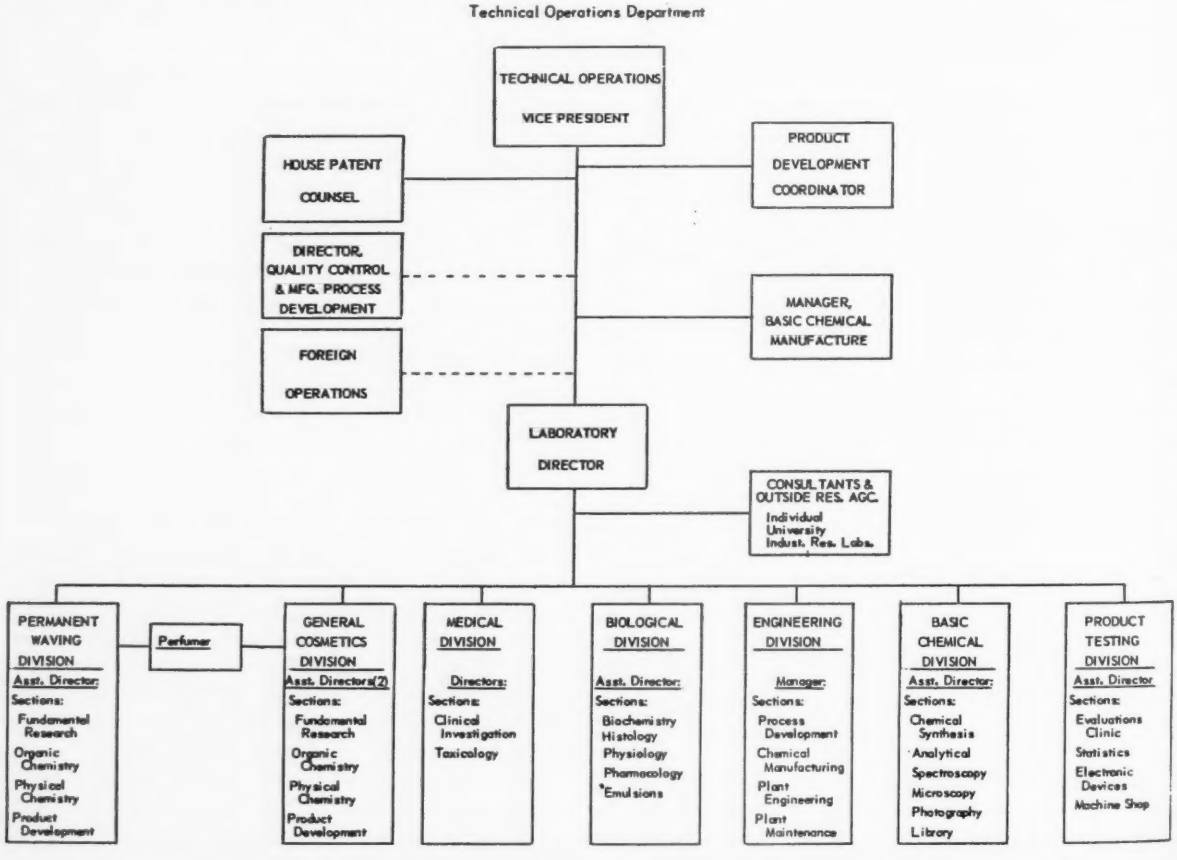
(*Continued on page 697*)

Research Organization 5
THE TONI COMPANY

The Research Department of the Toni Company, a Division of the Gillette Company, is believed to be currently the largest in the cosmetic field. The company's share of the home permanent wave market increased in 1956 over the previous year and several product improvements were introduced. These included the new Prom creamy lotion, a cold wave for children and a pin-curl permanent. More recently, the research department has been instrumental in the marketing of a new hair spray, shampoo improvements and a lotion deodorant.

A newly created division, Gillette Laboratories, is interested in the field of proprietary pharmaceuticals and has recently completed consulting and manufacturing arrangements with the Upjohn Company. A cough preparation is being prepared for marketing.

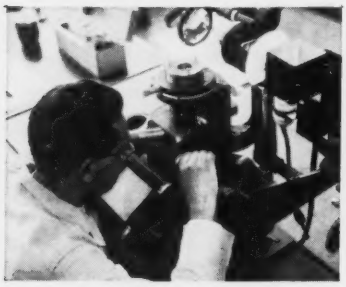
The scientific programs of the Toni Company have been expanded every year since 1948, when it first became a division of the Gillette Company and practically every major branch of science is represented in the organization chart. Main laboratories are located in Chicago, with facilities that are modern in every respect. The technical staff works in an informal and intimate atmosphere that permits maximum interchange and efforts are made, in terms of salaries and fringe benefits, to assure continuity of effort.



Packaging and Selling

Non-spill Safety Bottle
has been developed by Johnson & Johnson for its Liquiprin, an analgesic-antipyretic for children. A mushroom shaped polyethylene check valve attached to a stainless steel wire spring lodges under the neck of the bottle (center). When the bottle is tilted (left), the check valve is forced against the neck of the bottle, preventing access to the medication. Liquiprin is removed from the bottle (right) by a polyethylene dropper calibrated to measure exact dosage. The valve is pushed aside when the dropper is inserted into the bottle. When the dropper is withdrawn, the valve springs back into place.

Owens-Illinois Assures You A Complete Packaging Approach



Co-ordinated Research

Pure research into fabrication of glass, *packaging research* into processing and handling methods in customer plants, *market research* into consumer attitudes. All add up to greater packaging value.

Engineered Design

At Owens-Illinois, your package's *three* needs are taken into account: 1) Considerations of its function in the retail store, 2) its operating efficiency, and 3) its consumer utility.

The Right Container

Versatility of facilities and talents make O-I your best source of supply. In container development—beauty, utility, tradition are blended in the right proportions for your product's needs.

The Right Closure

Through long and continuing research O-I has developed the most advanced metal and plastic closures. Helping you choose the right closure is another function of O-I's packaging service.

Needed Fitments

O-I specialists are keenly aware of sales benefits derived from plastic shaker and pour-out fitments which are not "gadgets" but which increase consumer satisfaction with your product.

Merchandising Cartons

Modern cartons are developed only through systematic consideration of their opportunity to serve you in the retail store and warehouse . . . as well as on your own filling line and in transit.

Handsome, functional custom-designed containers in clear glass and amber can be your most effective sales tool

So attractive . . . so effective . . . Custom-designed Duraglas containers

The correct container, custom-designed by Owens-Illinois, can be your most effective sales tool.

Its distinctive appearance draws the shopper's eye—quickly creates a favorable first impression—faithfully expresses your product's quality and character. And to help you win repeat sales, its functional design makes your product easy to use, keeps it fresh from the first time it is used to the very last.

At Owens-Illinois, the correct container—custom-designed or stock mold—is but one step toward effective salespackaging. Label designs, special fitments, metal and plastic closures, proper closure liners, merchandising cartons—all are part of the Packaging Service offered you by Owens-Illinois.

For complete details, call the Owens-Illinois branch office near you today.

DURAGLAS CONTAINERS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

VERSATILITY

You can now obtain from Scovill without payment of fitting-up charges, several styles of either refillable or conventional type perfume pursers in a variety of metals and finishes. Or special variations of the basic containers can be worked out to your specifications. The versatile new refillable cases can accommodate a series of your different fragrances each in its individual refill unit to suit the consumer's whims of the moment... or they accept new refills of one particular fragrance without the messiness and loss of perfume associated with the usual "refillable" container. For distinctive cosmetic container work of all kinds consult: Scovill Manufacturing Company, Drug and Cosmetic Container Division, 99 Mill St., Waterbury, Conn.

SCOVILL Containers

PATENTS PENDING

Lentheric Launches TWEEDIE

"Paper Doll" Toiletries for Little Girls

The children's toiletry market, which is currently estimated between $6,000,000 and $8,000,000, is being entered by a pixie-like paper doll character named, "Tweedie" and her cut-out wardrobe. Both appear on seven brand new packages of toiletries for little girls . . . from 4 to 11 years . . . introduced last month by Lentheric.

Each package captures the most exciting moments in every child's life . . . bathing, partying, traveling, swimming, shopping, television-viewing. The preparations themselves, Toilet Water with a wonderful atomizer spray attachment, fragrant Bubble Bath Packets, Bubble Bath Liquid, Dusting Powder and Bath Soap on a pretty white rope . . . all feature a delightfully young and delicate floral fragrance, created especially for Tweedie.

Behind the introduction of the unique new Tweedie Toiletries line for little girls lies a complex and carefully worked out marketing approach.

Research has disclosed that at the present time, purchases of little girl's toiletries are impulse gift sales. They are rarely planned purchases. Bowing to this research, and with full recognition of the fact that the growing girls' toiletries market primarily needs education and fresh ideas, George Factor, Executive Vice President of the company, called in the creative designing talents of Donrico, Inc.

The problems were clearly stated and faced. To create any impact on the children's market, a line would have to be designed which represented a toy as well as a toiletry. Despite the fact that the line was to be beamed for use by 4 to 11 year olds, certainly adults would be the purchasers. Accordingly, a design was necessary that adults would instantly recognize as one favorably acceptable for and to children.

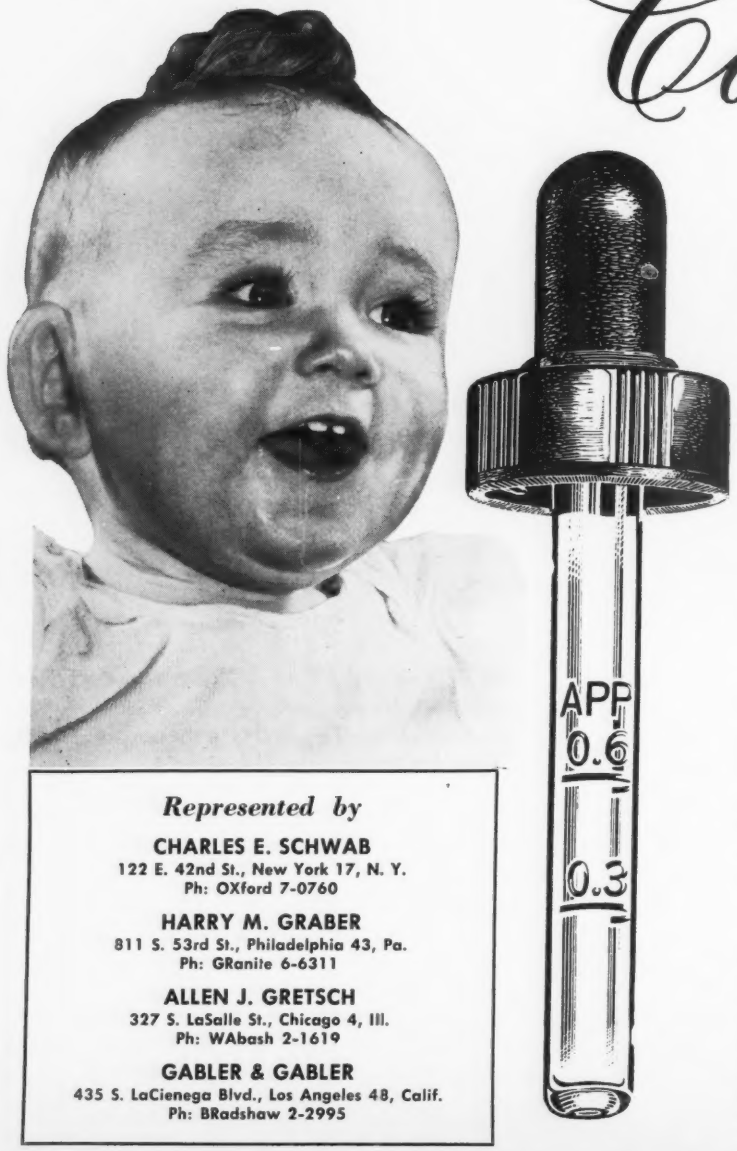
The paper doll approach was, literally and figuratively, tailormade. Paper doll cut-outs have been flourishing for many years, and their popularity among youngsters is an undisputed fact. The Tweedie carton looks like *fun*, even to adults.

The re-use adventures offered by the cartons are varied. In addition to the major theme, the "cut me out" doll and her wardrobe, there are such items as a playhouse, suitcase and a TV set . . . all designed to make a whole Tweedie world of play. Actually, they are toys with occupational art and manual dexterity

Q.F. In Droppers and Dropper Assemblies

by

Colonial



THE "QUALITY FACTOR" (Q.F.) plays a key role in operations at Colonial Applicator Company. The nation's mothers insist upon the finest in materials and products for their babies. We only wish it were possible to tell these hundreds of thousands of mothers about Colonial's quality control program that turns out millions of droppers and assemblies to meet the most exacting standards.

At Colonial there is rigid insistence upon the finest materials—carefully screened on arrival by an alert inspection program. Each machine on Colonial's production line is engineered to perform a specific task. Each is production-tested to turn out droppers to exacting specifications. Component parts of the dropper assemblies are assembled by skilled, careful workers.

Be sure your product receives the very finest "showcase" that men and machines can produce. Insist upon Colonial droppers and dropper assemblies. Let us make free samples to your exact specifications. Contact our representatives listed at left, or write direct.

Represented by

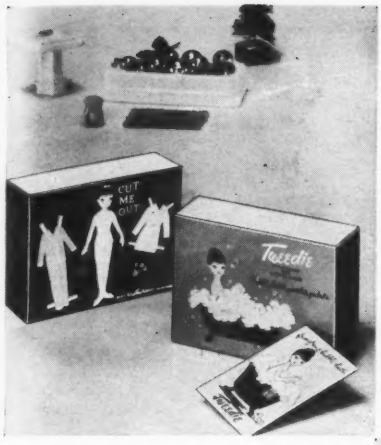
CHARLES E. SCHWAB
122 E. 42nd St., New York 17, N. Y.
Ph: OXford 7-0760

HARRY M. GRABER
811 S. 53rd St., Philadelphia 43, Pa.
Ph: GRanite 6-6311

ALLEN J. GRETSCH
327 S. LaSalle St., Chicago 4, Ill.
Ph: WAbash 2-1619

GABLER & GABLER
435 S. LaCienega Blvd., Los Angeles 48, Calif.
Ph: BRadshaw 2-2995

COLONIAL APPLICATOR CO.
VINELAND, NEW JERSEY



overtones. The fact that different cartons offer new accessories and new wardrobe changes tends to encourage repeat sales. All the dolls and clothes are interchangeable to facilitate this angle.

Tweedie herself was carefully developed and emerged as an effective character . . . immediately recognizable, from her specially created top-knot coiffure to her dainty feet . . . in itself a strong merchandising asset. Tweedie does not look so young that the older half of the 4 to 11 age group would scorn her, and she is just old enough to be admired by the youngest . . . as they might admire "big sister."

Colors chosen are gay, but not garish . . . contributing to the distinction of the line. The tweed embossed texture is used throughout to give further tangible interest to children who will cut out and play with the dolls. Every item is completely coordinated. A charming touch is to be found on the bottle labels. They are designed in the shape of the cut-out dresses, with the Tweedie head prominent.

To introduce Tweedie, Lentheric has created a prepacked, eye-catching counter unit to create youth-appeal in the season's sales.

The provocative unit features a picture of lovely little Tweedie on the header card and is colored in delicate shades of pink, blue and gray . . . the Tweedie colors. It contains a complete line of the toiletries in their unique "paper doll" packages including:

TWEEDIE TAKES A BATH—
12 fragrant Bubble Bath Packets $1.00*

TWEEDIE GOES SHOPPING—
2 oz. Toilet Water with Atomizer Spray 1.35*

TWEEDIE'S TV SET—
5 fragrant Bubble Bath Packets and
3 oz. Bath Powder 1.75*

TWEEDIE GOES TRAVELING—
Bath Soap on a Rope 1.00

TWEEDIE GOES TO A PARTY—
2 oz. Toilet Water with Atomizer Spray 1.85*

TWEEDIE LIVES IN A LITTLE HOUSE—
3½ oz. Liquid Bubble Bath
3 oz. Dusting Powder 2.25*

TWEEDIE GOES TO THE BEACH—
2 oz. Toilet Water with Atomizer Spray 2.50*
3 oz. Dusting Powder

*Plus tax

Lentheric's exciting new counter display unit of Tweedie Toiletries for little girls broadens the toiletries selling scope and gives impetus to the ever-growing and important tots-to-teens market.

Further, as part of the expanding marketing approach on Tweedie, there will be numerous high fashion tie-ins with children's manufacturers, and a special Tweedie promotion is being planned to break nationally after the first of the year. It will feature extensive display material for drug and department stores. Unique department store promotions are also being planned.

The Tweedie name will undoubtedly capitalize on its famous grown-up sister, Tweed perfume.

Meritseal provides a special touch of packaging glamour for your prestige cosmetic products. This distinctive cap, with its sparkling "show-case lithography" sets your product apart from the rest . . . captures the attention of the cosmetic buyers . . . creates the spark that results in sales.

And Meritseal has more than beauty. This closure is made of special rolled steel and has a die-stamped, precision made thread. This assures smooth, fast application on the production line . . . gives rigidity that eliminates expansion, contraction and cracking . . . prevents the outer shell from spinning . . . and provides easy removal and re-closing in the consumer's hands.

Meritseal has the answer for sizes, too. It is made in a very complete range from 33 to 100 mm. You can choose from a variety of liners, and they are all "locked-in" the cap by the special Meritseal construction.

CROWN CORK & SEAL COMPANY, INC., BALTIMORE 3, MARYLAND

COURTESY CONTINENTAL CAN

Cosmetics and drug manufacturers comprise 65 per cent of the polyethylene squeeze bottle market, according to an estimate by the Spencer Chemical Company, reported by that company's F. L. Pyle in a paper presented before the Chemical Marketing and Economics Division, American Chemical Society, Sept. 11 at the Society's 132nd national meeting. Breakdown on the estimate: cosmetics, 50 per cent; pharmaceuticals, 15 per cent; household and industrial products, 35 per cent. Part of Mr. Pyle's paper is presented on these pages.

Polyethylene Bottles

By F. L. PYLE SPENCER CHEMICAL COMPANY KANSAS CITY 5, MISSOURI

While other plastics have found occasional use in specialty, bottle-type containers, polyethylene is still by far the most common material used in plastic bottle production. Polyethylene's broad range of favorable properties serves to explain its popularity and widespread use in the face of its relatively higher cost as a packaging container.

The unbreakability and dent-proofness are, of course, two of its principal advantages. Breakage of glass bottles, by comparison, is not only unsafe but is costly in terms of the loss of the package and its contents, to which may be added damage done by spilled contents on other packages or surrounding objects. For products packaged for outdoor use, the polyethylene container offers the advantage that it will not break in the pocket or when dropped on the ground, plus the fact it will float if accidentally dropped into the water.

Resistance to corrosion of polyethylene is another of its big advantages for use in bottles, and one which allows it to capitalize on the corrosion sensitivity of metal containers. The light weight of polyethylene containers, roughly one-sixth that of glass containers of an equal capacity, allows considerable savings in freight, packing and handling. Polyethylene is odorless, tasteless, pliable even at freezing temperatures, shows excellent chemical resistance and is an effective barrier against moisture vapor.

An attractively designed polyethylene bottle has an eye-appeal and pleasant touch which is more conducive to merchandising displays than is the case with a heavy glass bottle, which may be difficult and even hazardous to handle. By increasing the tendency to display the product packaged in a polyethylene bottle, the product is more often purchased as an impluse item.

The availability of polythylene bottles in literally thousands of custom colors—colors which may match the product or the color design of companion packages—is, of course, an important sales feature of polyethylene bottles. Color, in addition to enhancing consumer appeal, aids in brand recognition.

Polyethylene squeeze bottles can perform a variety of functions, such as dispensing fine mists, coarse sprays, or streams from any angle, spraying vapors or powders, releasing droplets of liquids, or extruding ribbons or cords of creams or ointments. The squeeze bottle manufacturer offers nozzles, inserts or special caps which will dispense almost any type of liquid, paste, cream or powder that might conceivably be packaged in a polyethylene container.

Polyethylene Squeeze Cans And Collapsible Tubes

In recent years, polyethylene squeeze cans and collapsible tubes have joined the squeeze bottle, to add further to the variety of products which may be packaged in polyethylene containers.

Collapsible polyethylene tubes are finding large scale uses in the packaging of products such as cheese spreads, mustard, fudge sauce, polishes, shaving cream, hand cleaners, adhesives, and many other products. As compared to the conventional metal tubes, the polyethylene tube has the advantage that it holds its shape from full to empty and does not roll up, even

when the contents are exhausted. Thus, the name of the product and any directions for its use are always visible. Products packaged in polyethylene collapsible tubes now number into the hundreds.

The polyethylene squeeze can, among its many uses, has found major markets in the packaging of insecticides and detergents. The use of the squeeze can for packaging insecticide and fungicide dusts satisfied a long-unfilled need for a suitable package-applicator for these products. The squeeze can does an excellent job of dispensing these pesticides in a fine powder spray, regardless of how the can may be held during use.

Problems Encountered

In its market growth the polyethylene squeeze-to-use container has not taken advantage of its many favorable properties without showing, too, some of its inherent disadvantages. One problem which confronted the cosmetics industry when they first began to use polyethylene bottles as a packaging medium, was the deformation of the bottles during shelf storage. This deformation characteristic was found to be directly related to some of the specific ingredients contained in the bottle. Mineral oil is a particularly bad offender in causing deformation. Carter and Griffin found in their study of the effect of various materials upon deformation that there is little tendency toward deformation when stable oil-in-water, mineral-oil emulsions are packaged in polyethylene. However, water-in-oil emulsions cause deformity of polyethylene bottles within a short time after packaging.

Static attraction of dirt on polyethylene bottles is in some cases a nuisance; however, attempts are being made to incorporate an antistatic agent in the polyethylene to eliminate this problem.

Permeability of the polyethylene bottle has undoubtedly been one of the major drawbacks which have limited the extent of its market. One source has reported that two out of three products considered for packaging in polyethylene bottles were found to be unsuitable for this type of package because of the permeability characteristics of the polymer. The effects of permeation may be exhibited in the development of bad odor, change in flavor, rancidity, or discoloration due to oxidation or some other reaction; loss of weight of the product; distortion of the bottle; or the development of a greasy feel on the surface of the container.

In an attempt to overcome the problem of permeability of polyethylene bottles, several different polymeric coatings, including such plastics as polyvinyl alcohol and polyvinylidene chloride, have been investigated as linings for polyethylene bottles. A lining has been sought which would adhere tightly to the inner surface of the bottle to become an integral part of the bottle, and which would give the desired permeation properties. For some applications, the lining must also provide a needed improvement in chemical resistance. Several leading bottle manufacturers have conducted

COURTESY WINTHROP STEARNS INC.

development work on lining polyethylene containers and the successes which have been achieved have made lined polyethylene bottles and tubes a commercial reality.

Products which were found unsuitable for packaging in unlined polyethylene bottles, but which may be packaged in lined bottles, generally include oils, oil-based formulations, water-in-oil emulsion products, products which exhibit an excessive loss of essence or a change in flavor in unlined bottles, and products containing organic liquid and vapors which permeate polyethylene at an excessive rate. Examples of products for which the packaging characteristics have been improved by linings include: toiletries; cosmetics; some food products, such as mayonnaise, catsup and cheese spreads; lubricating oils and greases; paint products; finger nail polishes; and a variety of other products which could not be satisfactorily packaged in polyethylene prior to the development of successful lining materials.

Effects of Resin Density

The permeability resistance of polyethylene is improved as the co-related properties of linearity and density are increased. The solution to the problem of permeability would appear to be, then, to mold bottles from one of the newer high density or linear resins, as they are otherwise termed. In practice, though, the permeability of bottles made from the high density resins is not sufficiently improved so as to allow the packaging of many of those products which cannot be contained satisfactorily in low density polyethylene bottles. The permeability problems encountered with a few products are enough on the border line so that the use of high density resins will give the extra shelf life needed. However, to obtain improved permeability characteristics, it is not always necessary to go to the high density resins; that is, resins with a density in the range of perhaps 0.955 to 0.965. Most of the

(Continued on page 704)

glass containers move more drug products

Use **Anchorglass**® *containers sealed with* Anchor® *caps*

..because they are sanitary

THE glass container has the best psychological background of all containers. From the nursing bottle, through childhood to old age, glass stands for purity and sanitation in everybody's mind. High in chemical durability, it's inert to most products . . . cannot change them in any way. It can be resealed tightly . . . unused portions are safely stored and protected . . . purity and strength remain until the contents are entirely used. Move more of your drug products in glass . . . Anchorglass containers sealed with dependable Anchor metal or molded closures.

ANCHOR HOCKING
GLASS CORPORATION
Lancaster, Ohio

Packaging and Selling

Lipsticks

The lipstick is probably the cosmetic industry's most interesting product. It is certainly number one among all cosmetic products in the universality of its use in America. There are few other single products in any trade which so many American women in all walks of life consider an absolute basic essentiality. It is also probably America's best good will ambassador from the American cosmetic industry to women in every country in the world. There can be little question that the lipstick penetrates into many backward areas of the world where nothing else from America is ever seen.

If any cosmetic product has reached a market of absolute saturation, it is undoubtedly the lipstick. There is very little likelihood that any American women from any geographic location or from any social or economic strata who is not now using a lipstick will ever do so. Probably the one hope for expanding lipstick sales is increasing population and to a much lesser degree, from the use of color and style.

During this last ebullient decade of riotious consumer spending, a great many millions of dollars in advertising have been devoted to the lipstick. Hazel Bishop is generally credited with introducing television to the cosmetic industry as a marvelously effective way of extending the age old cosmetic method of selling, that is demonstration. Hazel Bishop's initial spectacularly successful advertising campaign for the lipstick, in which this company, starting from zero, within two years seized more than one-third of the lipstick market, was followed by a high degree of concentration of cosmetic advertising on the lipstick over the next few years.

A detail study of newspaper and consumer magazine surveys in consumer habits for cosmetic usage does not indicate any appreciable increase in the use of lipsticks by American women over this period of tremendous lipstick advertising. The reason for this undoubtedly, as we pointed out above, is that when Hazel Bishop started their advertising there was already a high degree of lipstick saturation in this country.

For this reason, it must be suspected that almost all of this advertising was directed toward taking business away from competitors and not to market expansion.

However, there is a big plus that can be partially attributed to this largely expanded advertising. In the period just preceding this decade the number of lipstick units which sold at retail for $1.00 or more was slightly less than 50 per cent and the number of units selling for less than $1.00, predominantly in the 10c size, was undoubtedly quite a bit over 50 per cent of the entire market.

During this decade, however, and as of today, this picture has drastically and materially changed. Today the American woman is very largely buying a lipstick that sells for more than $1.00. Probably over 80 per cent of the lipstick units today are priced at retail for more than $1.00 and basically around $1.00 to $1.35. Less than 20 per cent of the lipstick units sell for less than $1.00 in ranges such as the Colgate price range of 15c, 29c and 79c or the Pond's range of 29c, 59c, and $1.00 and Luft's presently widely advertised supermarket lipstick at 59c. Long ago the variety stores threw out the 10c size and these stores are engaged in trading up.

This somewhat dramatic switch by the American woman from the predominant unit of the variety store to the predominant price unit of the department store, from a price which averaged well below 50c to a price which now averages quite a bit above $1.00, was not an inflationary development because cost inflation figured very little in this development. As one lipstick maker said not too long ago, "The people in the cosmetic industry who guessed wrong in the worst way are the ones who failed to trade up in lipsticks." There was very little question that this strong responsiveness by the American consumer to the high priced lipstick has been a social development and has seen its parallel, for instance, in a strong trading up movement by the automobile industry.

There is no indication in an extensive study of consumer surveys and in trade experience of a high degree of consumer loyalty for a lipstick brand. Women buy lipsticks for a wide variety of reasons which may include color and fashion, technical and physical variations, package variations, and just pure impulse to try something new. Lipstick has unquestionably reached a status very close to the tooth paste where an entranced brand position can be quickly shattered by an outside technical innovation or even a gimmick. While there does not seem to be much possibility of any substantial volume increase in the lipstick business in the foreseeable future, there are, without any question, ample opportunities for strife and turmoil here.

New Advertising Technique

An original and unusually striking advertising campaign for Bristol Laboratories will appear in medical journals this fall. This strikingly different advertising

CANS WITH EXTRA SALES-APPEAL . . .

All the way around

Reflect for a moment on the picture above: six major brands of sweet-smelling talc. They've all made use of the sweet, selling advantages in Continental's specialty cans. There's plenty of room for directions, sales messages and information—all around the package. Plenty of room for unusual decorative effects—with no break in the design. We can give *your* product this same sales-appeal; Continental specialty cans are available in a technicolored variety of shapes and sizes. Call on us for details—*soon*.

Here's what happens: every angle of a Continental specialty can is lovely. The reason: our fine, expert lithography. Wide range of colors. Unlimited design possibilities.

QUALITY Continental SERVICE

CONTINENTAL CAN COMPANY

Eastern Division: 100 E. 42nd St., New York 17
Central Division: 135 So. La Salle St., Chicago 3
Pacific Division: Russ Building, San Francisco 4

Experience

AN INTEGRAL PART OF THE CONTAINER WHEN MARYLAND GLASS TAKES OVER YOUR DESIGN PROBLEM

STOCK DESIGNS

A variety in blue or flint glass and a complete range of sizes is ready for immediate shipment.

When you drop a packaging problem in our lap, the end result is more than a glass container. It is an *idea* . . . born of restless imagination, shaped by skilled hands, backed by years of sound experience. Our creative staff gives you a selling package that packs well, ships well and pushes your product on the shelf. For a successful solution to your design problem, contact MARYLAND GLASS CORP., 2147-53 Wicomico St., Baltimore 30, Md.

PACK TO ATTRACT IN

Maryland Glass

BLUE OR FLINT JARS AND BOTTLES

campaign was prepared for Bristol Laboratories by the Newark pharmaceutical advertising agency, Paul Klemtner & Company.

This advertising will appear in single sheet inserts, in which portions of the anatomy are embossed and printed on two sides. This is unique because for the first time the figure of the human has been given a third-dimension in a printed piece with a 3-D effect front and back. Not only will various organs of the body be shown in color but the complete arterial and venous system of human blood circulation is depicted on these inserts.

Inserts appearing in the October medical journals will feature Tetrex. We believe this advertising is well worth noting for possibilities of broader applications.

Cosmetic Survey

Half of the nation's population of ten years of age or older, that is 70,400,000 people. shopped at least once in a two week period in a drug store. This is in accordance with a recent survey conducted by Look Magazine.

Here is the percentage of people, age ten years and older buying the major products of this trade.

Look's survey is another one of those detailed depth interview surveys which are contributing so much factual information to marketing.

Drug Products	*Number of people purchasing*
Shampoo	26,000,000
Deodorant	20,750,000
Hand Lotion	15,400,000
Home Permanent	3,600,000
Face Cream, Powder, Rouge	8,400,000
Lipstick	9,450,000
Hair Spray, Wave, Tints, etc.	8,000,000
Tooth Paste or Powder	41,850,000
Toilet Soap	39,850,000
Headache Remedies	29,200,000
Hair tonic, oil or cream	13,800,000
Razor Blades	27,050,000
Shaving soaps, creams, lotions	11,900,000

More Visual-Sale Packages

According to the Paraffined Carton Research Council, there is a substantial growth in minimizing printed material on the package and in letting a photo or a life-like drawing of the product do the visual selling.

Why Not!

As publishers of the Trade Mark Record, we are awaiting not too eagerly for the first member of this industry to trademark the word "Sputnik."

We are very much afraid that this is sure to happen because Sputnik holds too many opportunities for our trade.

For instance, we see the possibility of the Sputnik Lipstick which gives you a lift higher than the skies or why not a Shampoo that is simply out of this world?

If a pharmaceutical manufacturer has any ambitions in this direction, we recommend a remedy for gas pains where Sputnik will give you relief by making you go BEEP—BEEP—BEEP.

Trouble from Packaging

Will packaging, from the retail viewpoint, enter a competitive period which will cause trouble in the retail store. According to a survey among department store managers, reported in a recent issue of "Stores" official publication of the National Retail Dry Goods Association, this is an increasing possibility.

A large majority of these stores state that they have fewer markdowns on packaged merchandise and that it reduces handling costs, and makes stockkeeping easier and selling service faster. However, these stores are objecting to the increasing number of odd sizes and shapes of packages which are being designed. According to the opinion of many store managers, "this trend in competitive packaging may tend to reduce the substantial value which packaging has brought to retailing."

Pardon our Chortle

We cannot help chortling, as a publisher, over a recent survey by the Ladies Home Journal which gives pretty conclusive evidence that the position of an advertisement in a magazine has very little importance. It seems, as this extended study has shown, that the thing which makes an advertisement click is the sales value of the advertisement itself and not its position.

In this study advertisements facing the table of contents had more below average ratings than those above. Pages facing important editorial features failed to command attention just about as often as those which received average attention. Pages in the back of the book did just as well and no better than advertising pages in the front of the book.

A few years ago we quoted in this department a study by a school of journalism in one of the leading universities. It was the conclusion in the studies of this school of journalism that the front of a magazine was no better than the back, the pages in the editorial department had no perceptable advantage and left hand pages received just as much attention as right hand pages.

A few months ago a newspaper survey came up with rather the startling information that the left hand column had a better attention value, even though extremely slight, than the right hand column.

The reason for our chortle is this. We have been pleading and arguing for many, many years, as a publisher, with certain advertisers who had pre-conceived ideas about advertising positions. These advertisers have insistently demanded a pet position, sometimes to the despair of the make-up men and to the despair of the advertising department who had to compensate with other advertisers. Now looking back we can see where some of these very insistent advertisers have been aggressively and insistently fighting for a position which was, to say the very least, no better than any other position in the magazine.

New Use for Fragrance

It seems to us there are unlimited ways for increasing sales of fragrance because almost every month we read of a new and interesting use.

The latest idea came from a foreign publication in a discussion of the new oxygen treatment which seems to be growing in France. The oxygen treatment is both

For precision and versatility—choose
OWENS-ILLINOIS for PLASTICS

For example—
New 1½-oz. push-up containers . . . available in clear plastic or a wide variety of opaque and transparent colors, with white opaque, snap-on caps.
For example—
Spouts and caps for aerosol shaving lather containers.
For example—
A handy tumbler.
For example—
New 4½-oz. Plastainer jars with stacking feature . . . available in a wide variety of opaque and transparent colors, with screw caps.

Owens-Illinois packaging know-how and high-quality standards offer you the finest in plastic molding facilities . . . Injection molding . . . Compression molding . . . A complete range in plastics for packaging, for specialties.

Branch Offices:

Albany . . . New York	Dallas . . . Texas	Milwaukee . . . Wisconsin	Richmond . . . Virginia
Atlanta . . . Georgia	Denver . . . Colorado	Nashville . . . Tennessee	Rochester . . . New York
Baltimore . . . Maryland	Detroit . . . Michigan	New Orleans . . . Louisiana	Sacramento . . . California
Birmingham . . . Alabama	Fresno . . . California	New York . . . New York	St. Louis . . . Missouri
Boston . . . Massachusetts	Hartford . . . Connecticut	Oakland . . . California	St. Paul . . . Minnesota
Buffalo . . . New York	Houston . . . Texas	Oklahoma City . . . Oklahoma	Salt Lake City . . . Utah
Charleston . . . West Virginia	Indianapolis . . . Indiana	Omaha . . . Nebraska	San Francisco . . . California
Charlotte . . . North Carolina	Jacksonville . . . Florida	Peoria . . . Illinois	Seattle . . . Washington
Chicago . . . Illinois	Kansas City . . . Missouri	Philadelphia . . . Pennsylvania	Toledo . . . Ohio
Cincinnati . . . Ohio	Los Angeles . . . California	Pittsburgh . . . Pennsylvania	Yakima . . . Washington
Cleveland . . . Ohio	Louisville . . . Kentucky	Portland . . . Oregon	
Columbus . . . Ohio	Memphis . . . Tennessee		

Pacific Coast Headquarters, 350 Sansome St., San Francisco; Plants at San Jose, Calif.; St. Charles, Ill.; Glassboro, N. J., and Riverdale, N. J.

OWENS-ILLINOIS PLASTICS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES • TOLEDO 1, OHIO

a rebellion against the bad air of cities and a therapeutic treatment that seems to be demonstrating some beneficial results.

Here is how the oxygen treatment works. You lie relaxed under a domed plastic bubble, breathing in pure oxygen pumped over ice to make it cold and moist, scented with either menthol, lavender, ozone, sandalwood, etc., which is supposed to cleanse and restore the respiratory organs.

Low Margin Retailing

With the title "Marketing's Coming Readjustment to Low-Margin Retailing" E. B. Weiss, director of merchandising for Doyle Dane Bernbach, Inc., publishes the latest in his studies of merchandising problems.

This last study strikes us as the most penetrating and challenging in this very enlightening series by Mr. Weiss.

This study of the problems of low-margin retailing is a well printed, 43 page booklet which, in our opinion, merits very thoughtful reading. As an indication of the scope in the range of discussion covering this general problem we give here the chapter headings for the book.

The Shopping Public Wins A Victory
The Return of Elastic Pricing
The Public has Become Off-Price Conscious
An Objective Approach to Low-Margin Retailing
What is a Discount House?
What Paved the Way for the Discount House?
Current Trends Among the Discount House
How Established Mass Retailers are Reacting to Discount House Competition
Now—the Manufacturer and the Discount House

This book is available for business executives and the office of the agency is at 20 West 43rd Street, New York, N. Y. or 6399 Wilshire Blvd., Los Angeles 48, Calif.

Another Co-op Failure

Westinghouse is another company that has gone sour on co-op advertising with its dealers. According to a recent report, a large percentage of co-op dollars have been wasted through hit and miss advertising placed by dealers.

Co-op advertising by dealers had been placed in radio, newspapers and direct mailing pieces or hand bills.

As a first step, all co-op funds were cancelled in all media except newspapers.

Radio was cut off from the dealers "because with the multiplicity of rate structures, it was impossible to be completely certain which one was being used."

Westinghouse also found in placing its own newspaper advertising that through certain combination rates, they were paying less then the bill submitted by dealers.

Repeat Ads

We have frequently commented here on the value of repeating a good advertisement. In these comments in the past, we have cited a number of case histories which show beyond any shadow of a doubt the essential value of such repetition. Case histories that have been cited here are the famous advertisement of the man with the violin, for Dana perfumes, certain Breck advertisements and that for Chanel perfumes.

There are many other examples in this industry where a good advertisement has been repeated a substantial number of times and has demonstrated that it can produce much more effectively than a brand new advertisement which was prepared simply for the purpose of producing something new.

We were interested recently to see that this same line of reasoning is developing in England where, apparently, the same factors of the high cost of production of art work and plates is bringing some critical thinking on costs. Here is what an English magazine recently had to say.

"Should advertisements be repeated, and if so, how many times? Few advertisers know, and few advertising agents dare tell them. The reason they dare not tell is because the answers are "yes," and "four or five times at least," and this may expose the agent to some acid comment. "We are paying for new ideas, and we are entitled to get them," says the client. So the agent changes the copy, even though a change may be for the worse.

"Advertisers want a change because they are sick of the sight of the advertisement. They do not know, as the agent does, what a lot of repetition is needed to get millions of newspaper readers even to notice the advertisement, let alone hate the sight of it. Once you have found a really good advertising formula, it is good policy to get all the value out of it. Change for its own sake is bad use of an advertising appropriation."

No Trance

A food executive takes issue with the motivational researchers who declared that the bewildering display of color, size and form on the shelves of a supermarket have the shopper in a trance.

Far from being in a trance, according to this marketing man, American housewives are the best and shrewdest shoppers in the world, far better than their mothers before them.

Reviving Institutional Advertising

Bayer Nasal Spray is the first new product to appear under the famous Bayer name. This may mean that Bayer will soon have a family of products.

There has been a running debate in this industry and in other packaging industries for many years regarding the value of a family name.

A few years ago, after the lengthy investigation, Coty decided that no customer ever purchased a Coty product. What they did buy was the specific brand under the Coty name, such as Muguet, Emeraude, Air-Spun and so forth. A great many people at this time agreed thoroughly that the consumer was not buying an Arden product, but was buying such things as Blue Grass and Velva. The same line of reasoning applied to Rubinstein and DuBarry and many other cosmetic companies that had acquired fame for their company name but had discovered that the fame for this company name was very far from a guarantee of success to an introduction of a new product.

This line of reasoning was supported by a very expensive investigation made by the Book Sellers Asso-

There's a subtle feeling of delicacy and gaiety in this bottle. It has fresh, crisp lines that make a light hearted appeal to youth.

It's hard to imagine a more fitting container for cologne, toilet water and kindred products than this ever-popular P-45.

We make this number in 10 sizes from ⅛ ounce to 16 ounces. They can be labeled or decorated to your specifications.

CARR-LOWREY
GLASS CO.

Designers and manufacturers of fine glass containers

Factory and Main Office: BALTIMORE 3, MD. • New York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART

ciation. In this investigation, Book Publishers were told that the name of the book publishing company, famous or otherwise, was no guarantee and, as a matter of fact, was not of the slightest value in the success of a new book. A study of book sales over a considerable period of time completely brought out the fact that a book was a success or a failure, depending exclusively upon the public's reaction to that particular book, and that the company name or the family name of the publisher exerted absolutely no influence except as an aid to getting original distribution in the book store.

The original success of Revlon was attributed in a large degree to the policy of this company in bringing out individual specialties and stressing these specialties as individual products.

Now, however, there is a very strong trend in a number of industries to promote and institutionalize and acquire a company luster because of a new conviction that the fame of the company name gives a supporting sales influence to any specific brand under that name.

There is a great deal of talk in advertising circles for reviving the largely discredited company institutional advertising that has been out of style quite a number of years. This theory is that a beneficial and respected company image in the consumer's mind gives a very powerful sales aid to the image which has been created in the consumer's mind for any one of the company's specific products.

We well recall in those distant and peaceful days when Theodore Weicker was directing the destinies of Squibb and under his aegis there was developed that famous slogan "the Priceless Ingredient." This slogan was an image identification of the Squibb name. There is not the slightest doubt that this feeling of security and quality control established as a rigid Squibb policy in the minds of consumers added a compelling sales value to every Squibb product.

We believe that this new trend of thought toward selling the company as well as the product has a double barrel sales value with intriguing and expansive sales possibilities.

Selected Distribution

Manufacturers in every industry where selected distribution is used, have been under very heavy pressure from almost every direction to expand this distribution.

This pressure has been particularly heavy in the cosmetic industry and during this booming consumer market of the last ten years a great many companies have broken down their traditional way of doing business and their traditional way of selling to either go frankly over to mass distribution or to try to straddle the fence, very often with their tongue in their cheek. Just recently we were interested to observe a trade paper advertisement for the Philadelphia Carpet Company. This company has a carpet distribution which is based upon a very careful selection of dealers.

The full page advertisement had the top headline "Available in every retail outlet" and then a sub-head in smaller type "Good way to distribute cigarettes, BUT . . . and then below that in large type "*NOT* A GOOD WAY TO DISTRIBUTE CARPETS."

New Word!

Here's a good new word. An executive of a leading grocery supermarket, speaking in St. Louis, said the city is "over-super-saturated."

This same executive voiced the opinion that the pint-sized super trend is growing.

All we have been hearing lately is expansion plans for the super-extra-duper grocery store.

May be a reversal in this extreme trend toward big size, which is posing a real threat to the arches of American women, has set in.

Cosmetic in Department Stores

"The Changing Competitive Position of Department Stores in the United States By Merchandising Lines" is a new book just published by the University of Pittsburgh Press.

This book is a study in "a new approach to more productive retail distribution."

During the last decade, the department store has been challenged in its competitive position by a number of new retail forces entering into American distribution. Anyone who is interested in the department store as an outlet for their merchandise, should certainly give some careful study to this thorough analysis.

Contrary to general opinion, the department store has not lost its competitive position in the department classified "toiletries, drugs and drug sundries."

For instance, in 1929 the annual percentage contribution of this department to sales throughout the store ran at 2.4 per cent. This percentage contribution has held fairly even through the years and reached a peak of 3.2 per cent in 1945 and a percentage of 2.8 per cent in the last year of this survey, that is 1953.

In another study this book shows that the toiletries sales in department stores has gained in market position since 1929. In that year department stores did 8.7 per cent of total sales, jumping to a high of 11.2 per cent in 1939 and a final resting point of this survey of 10.6 per cent in 1953. This was a gain of 21.8 per cent in competitive position since 1929.

In a table showing the departments within the department store, in which the physical volume of goods sold showed an increase over the years, the toiletry department had a place among the upper successful departments with a sales increase of dollar volume of 258 per cent as compared with 1929.

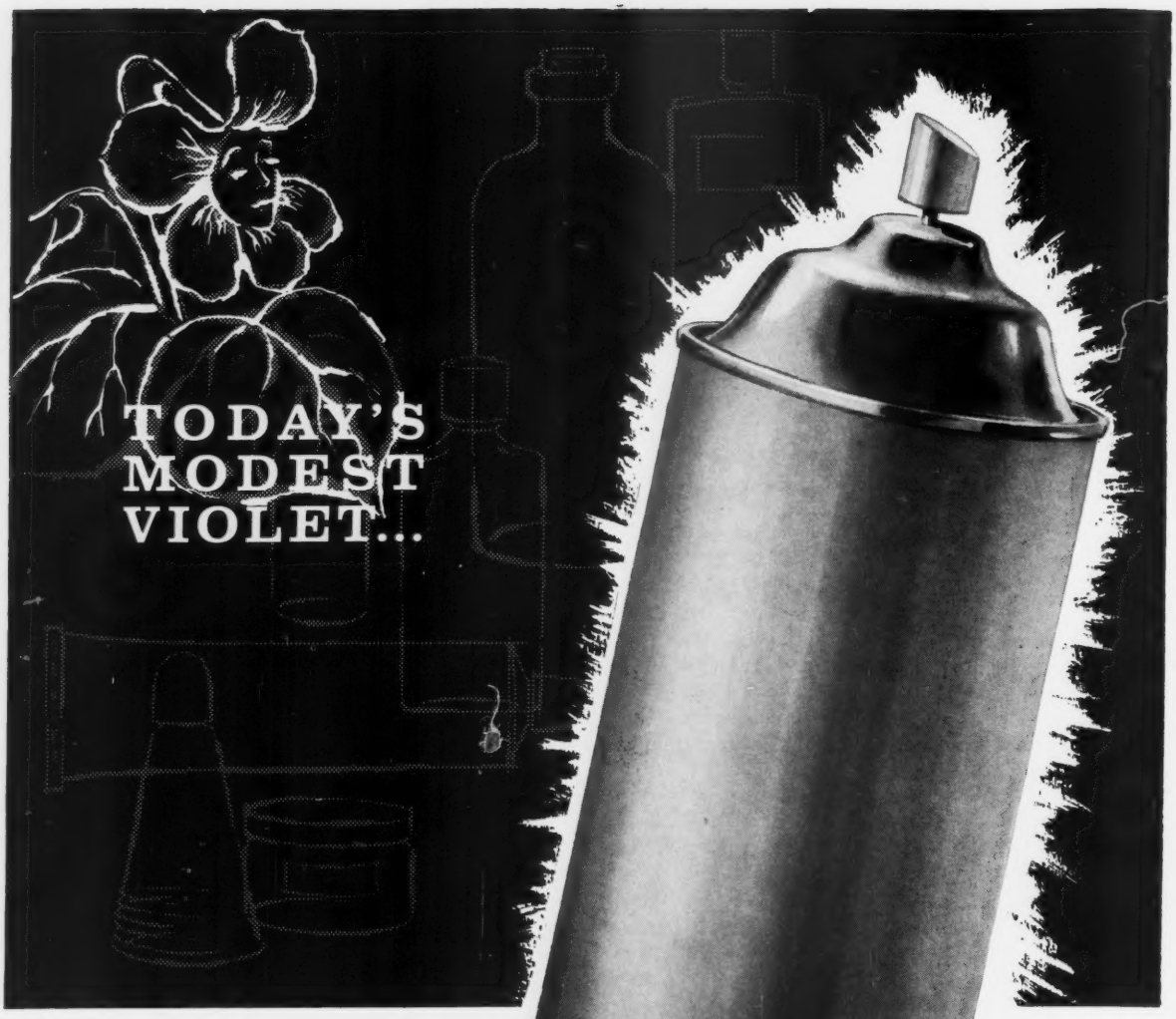
Here and There

Warner Lambert is introducing in its DuBarry Division a new fragrance called Seven Winds. Advertising will use the theme "Seven Winds—Wear It and You Stir up a Storm."

Do women still believe things like this?

One of the several basic formulas for introducing a successful product in this industry has been simply to change the form of the product. Many examples exist for successes of this kind, both in cosmetics and in pharmaceuticals.

For this reason, we are quite interested in the new product Twigger, a tooth paste in tablet form which reports say have already reached a sale of 41,000,000 tablets in test markets in the southwest. The tablets are made by Lampar Company, Dallas.

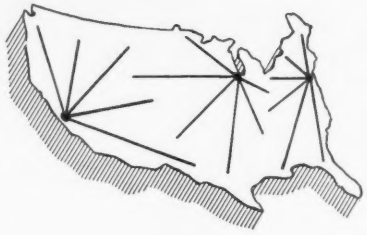


may be tomorrow's AEROSOL STAR!

It may be a cosmetic, pharmaceutical, chemical, food or specialty product. It may be a powder, liquid, or cream. It may be one of the regular products in your line. Perhaps it is an undeveloped formula or the mere "germ of an idea" in some person's mind. But the odds are that some product that is today unspectacular in its present package, may become one of tomorrow's fastest selling items when packaged as an *aerosol*.

Today in G. Barr & Company's laboratories, a continuing program of imaginative and persistent research is being carried on. All focused upon the development of new and better aerosol products and in further perfecting the Private Label aerosols we now manufacture.

We will be pleased to make available to you, the facilities and experience we have gained as America's leading Private Label Aerosol producers, to help you ascertain whether your idea, undeveloped formula or present product has an aerosol potential.



THREE
strategically located plants:
NEW YORK
CHICAGO
LOS ANGELES

G. BARR & COMPANY

3601 S. Racine Avenue • Chicago 9, Illinois

News in Packaging . . .

New Spra-tainer Development

A twelve-ounce fabricated Spra-tainer which features printing on the standard deep-drawn dome top has been developed by Crown Cork & Seal Company's Can Division.

The new printed-dome top offers new package decoration and merchandising possibilities and makes it possible to have a container with complete, over-all color lithography for maximum consumer eye-appeal.

Hazel-Atlas Sales Appointments

E. F. Westwood has been appointed regional sales manager, Central area for the Hazel-Atlas Glass Division; M. C. Robinson has been named regional sales manager, Midwest area; and John S. Auvil, district sales manager in Pittsburgh, according to J. I. Donahue, general sales manager of the division.

Prussin Joins Aerosol Techniques

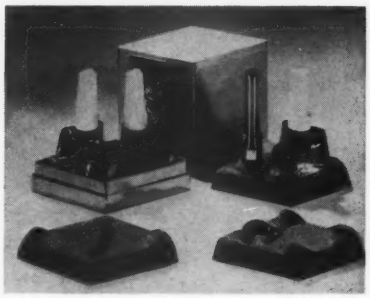
Sam Prussin has joined Aerosol Techniques, Inc., as director of new products and sales development, it has been announced by H. R. Shepherd, president. For the past eight years, Mr. Prussin has been associate director of research and product development for the Rexall Drug Company.

Crown Cork Chicago Sales Mgr.

Henry A. Kennington has been appointed regional sales manager for the Chicago territory of the Crown Cork & Seal Company, Inc., it has been announced by S. V. Tuttas, director of

HENRY A. KENNINGTON

sales for the company. Mr. Kennington joined Crown in January, 1956 as Midwest Area sales manager for the company's Can Division.



Using plastic molds and pre-flocked Styron sheets, Emet Plastics Corp. is vacuum-forming nail-polish-bottle platforms for Juliet Marglin, Inc. at the rate of 4,200 per hour. The vacuum forming technique, says Emet, eliminates handling the pre-flocked Styron after forming. When a run has been completed, the molds can be removed quickly and held for future use.

New York Mgr. of O-I Branch

Robert F. Miller has been promoted to manager of the New York branch of

ROBERT F. MILLER

the Glass Container Division, Owens-Illinois Glass Co., Sidney F. Davis, vice-president and division general sales manager, has announced. Mr. Miller succeeds Robert E. Graham, who recently was elected a vice-president and named general manager of the Glass Container Division.

Amer. Can, Marathon May Merge

American Can Company and Marathon Corporation have reached agreement on terms for merging the two companies, it has been announced by William C. Stolk, president of American Can.

A special meeting of American Can's stockholders has been called for December 3 in New York to vote on approval of the merger. Marathon's stockholders will be asked to take similar action at a meeting on the same date at Menasha, Wisc.

Aluminum Cans Offered

Continental Can Company is offering aluminum cans in several different styles. In addition to conventional three-piece and drawn cans which will be commercially available immediately, Continental early next year will offer aluminum cans formed by impact extrusion.

The aluminum containers, according to Gen. Lucius D. Clay, the company's chairman of the board, will initially cost significantly more than conventional tinplate cans. The differential, however, is expected to shrink progressively as aluminum manufacturers are able to trim costs by more efficient production of can stock and manufacturing processes are improved.

General Clay emphasized that Continental does not view aluminum as a substitute for tinplate but rather as a material which can give metal containers greater versatility and usefulness.

"Aluminum has definite commercial advantages in such respects as weight saving, resistance to corrosion, shelf life of some products, flexibility of styling and decorative quality," General Clay said.

Test packs of food products, beverages, cosmetics and aerosol-type products have been made in aluminum cans over a period of several years at Continental's Metal Research and Development Center in Chicago, General Clay said, and the Company already has accumulated considerable technical knowledge on aluminum packaging.

Imco Appoints Donohue

Morton P. Donohue has been appointed to a position in the New York sales office of Imco Container Corporation. He will join LeRoy Durkin in

MORTON P. DONOHUE

handling East Coast sales activities. For the past twelve years, Mr. Donohue has been associated with Warner-Lambert Pharmaceutical Company.

Patent thoughts and trends

by Thomas Cifelli, Jr., PATENT ATTORNEY*

This month we shall consider some recent decisions of the U.S. Commissioner of Patents and the Patent Office Board of Appeals, dealing with patent and trademark cases; also, we shall continue the reporting of Dr. Bush's proposals for improving the U.S. Patent System.

Patent and Trademark Decisions

Two patent cases believed to be of general interest were decided recently in the Patent Office. One dealt with the question of utility and the other dealt with the question of indefiniteness in claims.

Readers well know by now that the drug industry is having its problems in connection with the need to make satisfactory disclosures concerning utility, in U. S. patent applications. However, one should not lose sight of the fact that every patent, regardless of the field it relates to, must be supported by satisfactory statements showing utility. This principle is shown by a recent case where the Patent Office Examiner denied a patent dealing with intermediates for anthraquinone dyestuffs because no statement concerning utility was made. An appeal was taken to the Board of Appeals but it was dismissed for lack of prosecution. Thereafter, the applicant refiled the case, this time inserting an adequate statement on the utility of the compounds, which happened to be aminobenzyl ethers of alcohols. However, the "cow already was out of the barn" because the same compounds were disclosed in U.S. patents which were filed subsequent to the first application but prior to the filing of the second application.

The Board held that the statement did not entitle the second application to the priority of the first application and since the cited patents were entitled to priority over the second application the second application could not be allowed.

This case is just another one of a line of decisions which over the years has served to give importance to the need for a showing of utility, an importance it did not appear to have before.

With regard to the other case referred to, that is, the one dealing with indefinitedness in claims, it is believed that just about everyone who has had anything to do with attempts to obtain U.S. patents knows that the Patent Examiners require that definite terms be used in claims. This requirement is particularly true as regards terms which are used to distinguish the invention over the prior art, that is, which go to the real point of novelty. However, the Patent Office, generally speaking, is rather lenient in its application of this rule that claims should be definite where the patent applicant can show that he is being as definite as the circumstances permit.

An indication of this leniency is a recent case where terms such as "high finish and roughening," "different degrees of roughness" and "different finishes and dimensions" were held not to render the claims indefinite.

The invention dealt with piezoelectric crystals having high activity. The appellant was concerned with providing a crystal in which the electrode areas have a high finish to produce high activity over a predetermined temperature range. He found that providing a rough finish to a certain area produced the result he desired.

The Patent Office Board found that the term "high polish" is a term used in the particular art involved and that the claim provided a basis for comparison where it called for a high finish and a roughened finish. Furthermore, the Board said that the disclosure itself could be consulted in order to determine what is meant by the wording used in the claims.

The trademark case decided by the Commissioner of Patents involved the two marks: "ZOTOS" and "ZOTOX."

The Commissioner, although holding that the marks look quite alike and that they can be pronounced similiarly—considerations which often lead to a refusal to register the mark adopted later,—nevertheless, held that there is no probability that purchasers would likely be confused by the marks on different goods.

The Zotox mark was used on an ointment for the relief of ivy, oak and sumac poisoning and was packaged only through drug wholesalers to drug stores and drug departments and other stores which in turn sold the ointment to the general public.

The mark Zotos was adopted long before the Zotox mark and was used on a line of cosmetics including hair waving pads, wave setting material, clamps, clips, rods and attachments thereto and for hair waving lotion. The products were sold primarily for professional use in beauty salons although some of them other than permanent wave supplies were sometimes retailed by such salons.

The Commissioner held that the products were quite different, Zotox being used on "pharmaceuticals" and Zotos being used on "cosmetics." The Commissioner found that the products do not move in the same trade channels; they are not ordinarily sold in the same stores; and they are not sold under the same conditions and circumstances.

To the contentions by the Zotos owner that it is common knowledge that pharmaceuticals and cosmetics are often made by a single manufacturer, the Commissioner replied that when such is the case the trademarks used on pharmaceuticals and those used on the cosmetics seldom if ever look alike or sound alike or have similar meanings or connotations or significance. The Commissioner pointed in this connection to the practice of the owner of the Zotos mark itself (Sales Affiliates).

This case is believed to be a real border-line case and one should not draw broad conclusions therefrom. Nevertheless, it does show that it is extremely difficult to predict the outcome of cases involving trademarks.

Dr. Bush's Proposals For Improving U.S. Patent System (Cont.)

In the last issue of This Journal the well-thought-out and authoritative proposals of Dr. Vannevar Bush for improving the patent system were published in part. It was pointed out that although proposals for changing the U.S. Patent System are not unusual, the standing of Dr. Bush as a scientist and an authority on the U.S. Patent System gave his proposals the highest importance.

His proposals fall into three categories as follows:

*Richards and Cifelli, Newark, New Jersey

IMCO

exclusive manufacturers of squeeze bottles

Specialists

Today when you want a job done, you turn to a specialist. So Imco has remained a "specialist" in the design and manufacture of plastic squeeze bottles. It's the only product we offer. And we do the whole job ourselves . . . from the idea through printing the label on the finished bottle. Nothing else interferes.

DESIGN. Imco's design specialists concentrate exclusively on plastic bottles. So naturally plastic bottles have top priority both in creativity and in work scheduling. We work with you to create the *right* design to best put your product in demand and in use.

COLOR. Again Imco specialists step ahead of the industry. We do our own color blending. And in Imco's color laboratories, exclusive processes assure exacting uniformity of color . . . bottle after bottle . . . order after order. So you select the shade of any color in the spectrum . . . pick the precise hue . . . and that color is yours forever.

LABELING. Here again it pays to have specialists. Imco's printing specialists have developed processes for printing your label . . . whether silk screened or hot-stamped . . . that put them ahead of the entire industry. This extra skill shows in every Imco label.

ENGINEERING. Time and again Imco is first with important new developments. And this is because Imco's engineering department devotes 100 percent of its time to squeeze bottles . . . to achieve greater economy, more rigid specifications, and exacting quality control throughout.

IMCO BOTTLES CARRY FLEXCEL® THIS TRADEMARK

IMCO CONTAINER CORPORATION

Empire State Building, Room 6204
350 5th Ave., New York, N. Y.

27-67 Vine Avenue
Toronto, Ontario, Canada

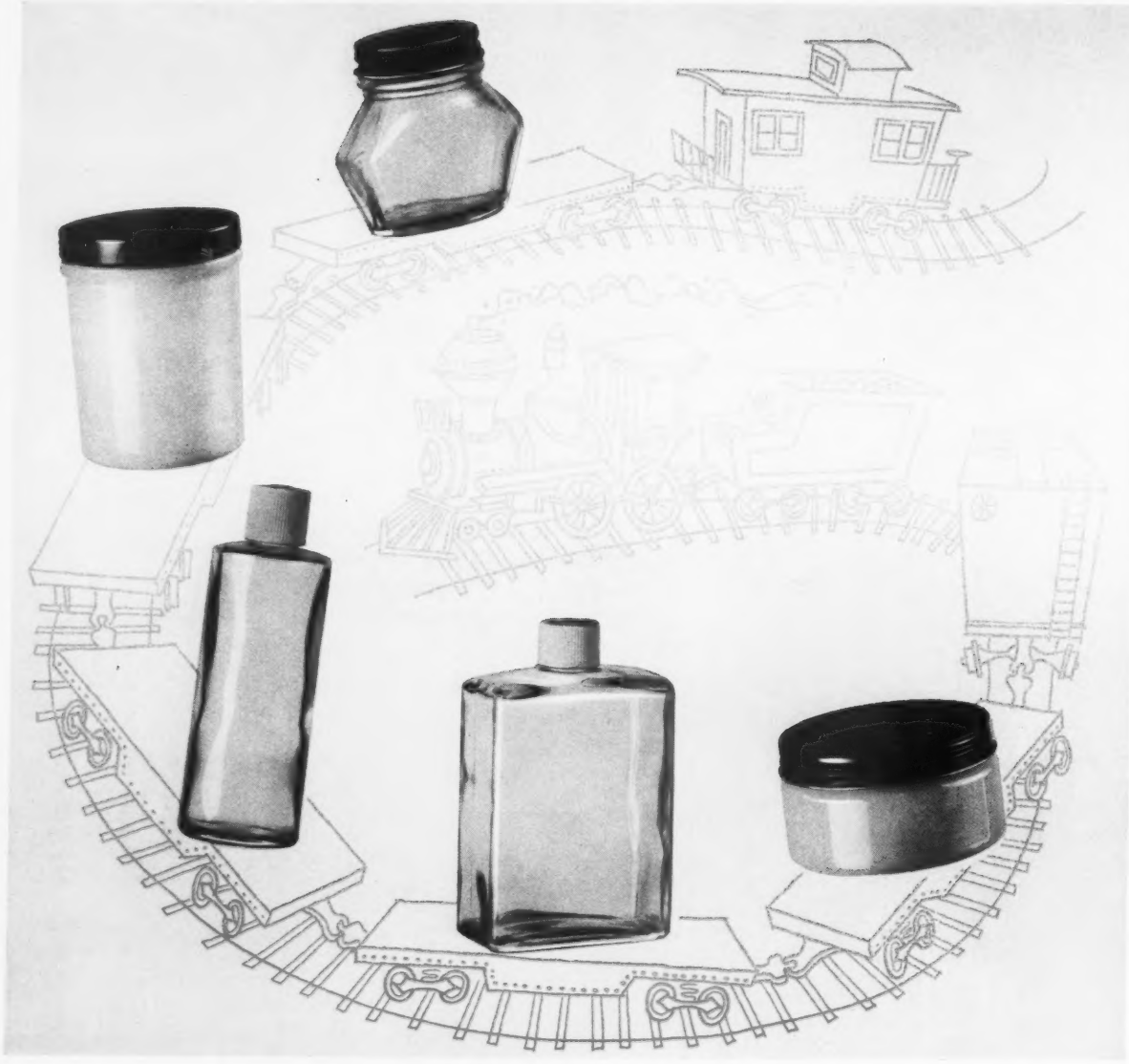
75th & Cleveland
Kansas City, Mo.

608 McCall Building
Memphis, Tenn.

Palmolive Building, 919 N. Michigan Ave.
Chicago, Illinois

4515 Olive St.
St. Louis, Mo.

5957 South Western Ave.
Los Angeles, Calif.



...rolling stock

The beautiful Hazel-Atlas line of *Stock* Cosmetic Containers really *rolls* — helping move your products from display to the consumer. Beautiful . . . *yes!* And more — they are also practical. H-A Opal Jars are straight, light — strong, white. Gleaming white opal glass hides air-pockets. Straight-sided for easy filling. Save time and expense with distinctive H-A"Deco-fired"Cosmetic Labels and designs for flint or opal — economically applied in one or more permanent colors at the time of manufacture.

Rigid quality-controls keep your H-A containers uniform in size, shape, clarity and color. They perform efficiently on the filling line and display your product at its best. You are sure of fast, dependable delivery during sales peaks and emergencies, served by H-A's nationwide network of glass plants and warehouses. Call or write your nearest H-A representative today.

... glamour in glass

HAZEL-ATLAS GLASS division of CONTINENTAL CAN COMPANY

WHEELING, WEST VIRGINIA

A. Purposes and Objectives of the Patent System,
B. Current Problems of the Patent System, and
C. Recommendations for Improving the Patent System.

Part A was published in the last issue. We now give Part B in Dr. Bush's own words:

B. CURRENT PROBLEMS OF THE PATENT SYSTEM

Yet the system is not now working with maximum effectiveness. The principal reason is that science, industry, and the country generally have altered greatly while the patent system has not. There is genuine need to modernize it.[26] Still, great care must be taken lest, in the effort to modernize the patent system, we destroy it and thus decrease the distinguishing vigor it has brought to us as an industrial nation. This caution is not an idle one. Extravagantly uncritical attacks on the patent system have frequently been made, and in the guise of correcting the abuses of the patent system, many well-meaning critics have instead proposed remedies which would do injury to the patent system.

The difficulties and maladjustments within the patent system must be eradicated, not only so that the abuses to which they give rise may be cured, but also so that abuses to the patent system may no longer be committed in their name. In this way only can the patent system continue to serve the country in the coming years as fully and as well as it has in the past. The soundest approach is to examine what the changes in science and industry have been, to determine where they have created maladjustments in the patent system, thus to study why the system falters and then to seek the most promising remedies.

1. Modern invention—archaic patent system

The patent system was designed primarily for the recognition of an individual inventor who, seizing upon a brilliant idea, could make a model of it or give it a demonstration which could readily be grasped by any practical man. This type of individual has not disappeared; there is still the opportunity for the highly ingenious to see the short cut or the practical embodiment that would otherwise be overlooked. But invention is also a matter of persistence and hard mental labor. Moreover, as science and its applications have become more complex, creative effort by the single inventor has become more and more superseded by group collaboration. Witness the growth of large research facilities, both in non-profit institutions and in commercial organizations. The act of invention now often comes as the culmination of a long-continued scientific collaboration, since individual inventors do not have the technical ability, the equipment, or the money necessary to work out further developments on the basic inventions which have meant so much to modern industrial society.[27]

I have given an example above of a brilliant invention made by an individual. Let me illustrate the other kind of invention, which is more typical of important inventions of today. The thermionic tube is the device which has been mainly responsible for our present radios, radar, television, and a whole range of electronic devices in industry. It is a matter of glass envelopes, vacuum, heated cathodes, and delicate metallic parts. Now it appears that it will soon be superseded, for many if not all of its uses, by the transistor, which is simply a little block of solid material with a few fine wires connected to it. Did this idea spring full blown from the mind of some genius? Not at all. Before it could be produced at all there were years of study on the chemistry and physics of the solid state, and some rather abstruse mathematics concerning the progress of electrons and "holes" through a crystal. One could hardly have happened upon it by accident, for it required that to a pure material there be added an exceedingly minute amount of a special impurity, and keen analysis and experimentation was necessary before one could intelligently prepare the pure material, and find out how to insert just the right amount of the right impurities. Thus the transistor emerged from a long period of intensive group research, principally at the Bell Laboratories. If I had to pick out one inventor to give credit to in this connection I would select William Shockley. But he would be the first to insist that to pick out one individual would be a fallacy, for the act of invention was only one part of a well-ordered research in which many very able scientists and engineers participated.[28]

It is fully as necessary that this collaborative type of creative effort should be stimulated, and that the way be paved for its creations to come into practical use for the benefit of the public as it is to stimulate the individual inventor who works in his own laboratory. Consideration of the best form for the patent system requires keen attention to this modern form of invention.[29]

If one thinks merely of a lone inventor, to be rewarded if he contributes a useful idea for our benefit, the matter seems very simple. The equitable and wise handling of the problem of the great industrial organization, with thousands of patents obtained from its employees and others, appears in quite a different light.

There is still another facet to the situation. It should be remembered that the patent system was set up, not just to reward an inventor or a group of coinventors—that was incidental—but also to facilitate the advent into use of new devices which would satisfy public needs and desires, and give useful employment. When the system can accomplish this, it is well worth vigorous support. When it tends in the other direction it needs modification.

The modern scene is vastly different from that of the early days of the Republic in regard to what is involved in bringing a new device into practice.[30] When one of our forebears invented a new candlestick, he or his friends could make them in an attic and, if they were really an improvement they could be sold in small quantities and thus create a very small but going business. When Benjamin Franklin produced a new sort of stove, stove manufacturers could readily alter the pattern in their foundries and produce it. Suppose today someone invented a new type of razor, and let us assume it is genuinely different from either the blade or the motorized type, and superior in performance to both. I don't think this is likely to happen, for this field has been well plowed, but it might. It certainly could not be produced and sold in small quantities on a profitable basis in competition with well-entrenched types, for one reason because costs would be too high except under conditions of mass manufacture. It would probably take half a million dollars to put it into production and several millions to impress it sufficiently on the public consciousness to establish its position as a real competitor. I hope that, if someone does invent a really superior razor it will become available and I can buy one. But this can hardly happen unless the patent system is in good order and in tune with modern times and problems.

The increased complexities and costs that attend the introduction of new products into the market have their counterparts in the administrative and judicial processes that attend the securing of patents and their enforcement. The great advances in science since the patent system began to operate in this

(*Continued on page 698*)

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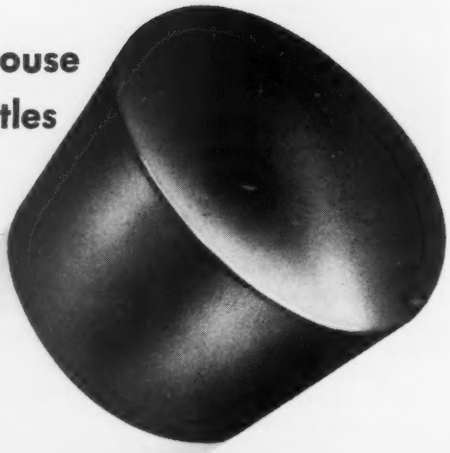

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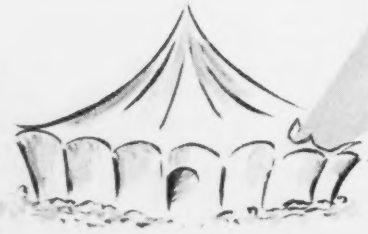

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Tapered sides, concave tops, perfect proportions identify these as "CAPS WITH A FUTURE" — made in #'s 10-425, 13-415, 15-415, 18-415, and 22-415 standard sizes, in black phenolic, colored urea (your choice), or in the well-known Goldcôte® and Silvacôte® vacuum metalized finishes.

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Growth aerosols point the way to volume sales

Market studies point to huge potential sales for growth aerosols—products which have not yet been widely promoted in aerosol form. Many products, like colognes, personal deodorants, hair lacquers, hair tints, hair dressings and conditioners, and sun-tan lotions, which have large total sales in all forms of packaging, are now available in aerosols.

And, whenever housewives try these products in aerosol form, they show an overwhelming preference for them. Surveys reveal that aerosol features like ease of use, spill-proof package and no loss or waste in storage or use rate high with housewives.

High preference for aerosol packaging, plus a large total market for these products, points to a big-volume potential for aerosol-packaged products. Why not package your product for profit in an aerosol?

"Demonstration SELLS aerosol sun-tan oil," reports a Miami department-store manager. "Once a customer sees how easy and effective aerosols are to use, she's sold. For drug and cosmetic products, aerosols are one of today's most exciting sales stimulators."

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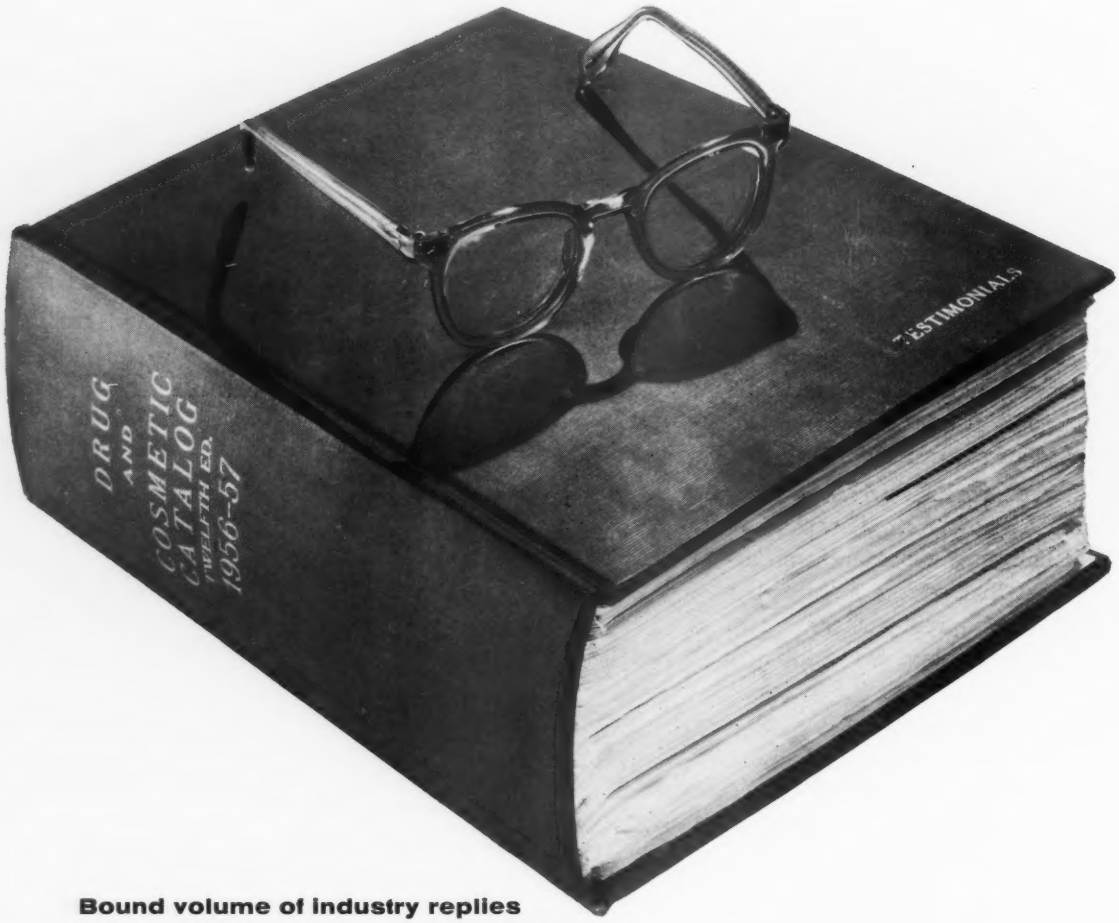

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We would like to show you the letters

Drug and Cosmetic Catalog, published for 27 years, will soon appear in its 13th edition.

A complete directory—the only specialized one for this industry and packed with other useful information for buyers, chemists, plant men and other factory men—the new 1958-59 edition is now in process.

May we send you data on this valuable Drug and Cosmetic Industry advertising medium with an active, producing life of two years.

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#1

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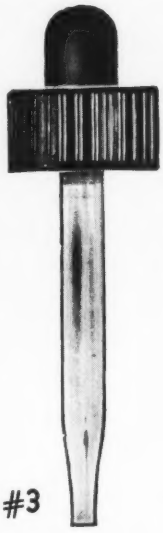

#3

DROPPER GLASSES

are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

BULBS

are supplied in many styles and colors. Oil-Resisting AMEKINE synthetic rubber is used for oil preparations; natural rubber is supplied for other products.

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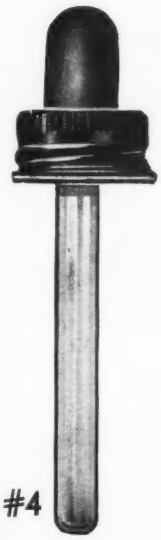
of plastic or metal, can be furnished in a complete range of sizes and colors.



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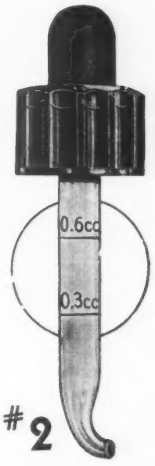

#2

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NEWS...

NIH Virus Research Chief

Dr. Joseph L. Melnick has been appointed chief of the Laboratory of Viral Products, and of the Virus Research Section, Division of Biologics Standards, National Institutes of Health, it has been announced by Dr. Roderick Murray, Division Director. Dr. Melnick will be concerned with fundamental research in virology related to the safety, purity, and potency of virus vaccines and to the development of future viral products.

Prior to his new appointment, Dr. Melnick was professor of epidemiology, Yale University School of Medicine. His research for the past several years has been concentrated largely in the new field of enteric viruses, a field which has developed through the expanding use of tissue culture methodology.

Mead Johnson Names Ogilvy

Dr. W. S. Ogilvy has been appointed director of nutritional and parenteral product development in the research division of Mead Johnson & Company. As head of this newly created department, Dr. Ogilvy will be directly responsible for the development of new nutritional and parenteral specialty products for all age groups.

National Brands Vice-Pres.

John Edward Grimm III has been appointed a vice-president of National Brands Division, according to an announcement from Sterling Drug, Inc. He was vice-president in charge of marketing for J. B. Williams Company from 1954 until coming to Sterling.

JOHN EDWARD GRIMM III

RICHARD L. HANSON

NWDA Election

Richard L. Hanson, vice-president of McKesson and Robbins, was elected president of the National Wholesale Druggists Association at the association's 83rd annual convention, held Oct. 30 at Bal Harbour, Fla. H. C. Van Arsdale of Smith, Kline and French was elected chairman of the board of control.

Other officers elected include: Roy V. Schwab, Brunswig Drug, Los Angeles, first vice-president; Henry Henley, McKesson & Robbins, New York, second vice-president. Harry A. Kimbriel was re-elected executive vice president.

Pfizer Labs Asst. Gen. Mgr.

George C. Mayoue has been appointed assistant general manager of Pfizer Laboratories. He will report to Dr. J. J. Van Gasse, general manager of the division, sharing with him the responsibility for all divisional operations.

Mr. Mayoue, who joined Pfizer in August, 1951 as a professional service representative, has also been the company's hospital representative at the Mayo Clinic. He has since served as a coordinator in Pfizer's new product development department and as assistant to vice-president Thomas J. Winn.

Ciba Senior Chemist

Dr. Gordon N. Walker has been appointed senior chemist in the research department at Ciba Pharmaceutical Products Inc., Dr. Emil Schlittler, vice-president and director of research, has announced.

Crookes-Barnes Vice-Pres.

Walter H. Hoskins, Ph.D., has been named vice-president and director of clinical investigation at Crookes-Barnes Laboratories, it has been announced by Edmund R. Beckwith, Jr., president. Doctor Hoskins has been director of clinical investigation for Warner-Chilcott Laboratories for the past five years.

SCC 1957 Medalist

Dr. John H. Draize, Chief—Skin Toxicity Branch, Division of Pharmacology, U. S. Food and Drug Administration has been selected by Society of Cosmetic Chemists to receive its 1957 Medal Award for outstanding contributions to cosmetic science. The medal will be awarded at the society's annual meeting and medal award dinner Dec. 10 at New York City's Hotel Commodore.

Recognized as the outstanding contributor in establishing adequate tests and methods to assure the safety in use of new and varied cosmetic products, Dr. Draize has over the years been accorded scientific recognition by having such methods and tests named for him.

Dr. Draize, the ninth recipient of the society's medal was born in Brussels, Wisc. and educated at the University of Wisconsin, being awarded the Ph.D. degree in Pharmacology in 1931.

He entered federal service in the Medical Research Division, investigating war gases in 1935. This appointment heightened his interest in skin pharmacology and toxicology and he was appointed pharmacologist in the Food and Drug Administration in 1947, being assigned to cosmetic and topical drug problems. He was appointed chief of the newly created Skin Toxicity Unit in 1947.

Sabbat J. Strianse, president of the society, will make the award, the speaker for the medialist being Dr. G. Robert Clark, honorary member of the society, who is Chief, Division of Cosmetics of U. S. Food and Drug Administration.

The Committee selecting the recipient was Dr. Emil G. Klarmann, Lehn & Fink Products Corp.; Dr. Everett G. McDonough, Evans Chemetics Inc.; Miss Florence E. Wall, consultant and writer; Dr. Ernest G. Guenther, Fritzsche Brothers, Inc.; Dr. William A. Poucher, Yardley's of London; all previous society medalists.

DR. WALTER H. HOSKINS

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MANUFACTURERS OF CLOSURES, CONTAINERS and MACHINERY

Pfizer Distribution Centers To Be Built in N.J. and Ga.

Plans for the construction of two new distribution centers, one in Clifton, N. J. and the other in the outskirts of Atlanta, Ga., have been announced by Chas. Pfizer & Co., Inc.

The new Eastern distribution center in Clifton will be erected on a nine and a half acre site about ten miles from the Lincoln Tunnel leading to New York City. It will contain 150,000 square feet of space, part of it air-conditioned for the storage of heat sensitive drugs and chemicals.

Eastern regional sales headquarters for Pfizer's chemical sales, agricultural sales and J. B. Roerig & Co. Division will be located in the new building. The Pfizer Laboratories Division will establish both its eastern and northeastern regional sales offices in the center. Designed to Pfizer specifications for occupancy on a long-term lease-back basis, the center is scheduled for completion next June.

The Southeastern center will be constructed in Chamblee, Ga., a suburb of Atlanta. It will replace a smaller branch operated in the Georgia capital since 1952. Entirely air-conditioned, the new center will have about 32,000 square feet of space, 27,000 of which will be devoted to storage space. Regional sales offices for the company's four marketing divisions will be provided. The Chamblee facility will also be occupied on a lease-back basis. The company expects to occupy the new premises in April.

Roche Appoints Betzer

Clifford W. Betzer has been appointed administrative assistant to the general sales manager of Roche Laboratories, Division of Hoffmann-La Roche Inc. Mr. Betzer, who joined Hoffmann-La Roche as a sales representative in 1941, became divisional sales manager in 1949.

DAVID R. EAGLESON

Eugene Armstrong, a group leader on the night shift in the tissue culture animals department of Eli Lilly and Company, has received an award of $6,689.10 from the company for his idea for a new type of moneky-feeding pan, which reduced a costly loss in feed. The award represents a percentage of the first year's savings realized from Mr. Armstrong's suggestion.

W-C, Nepera Marketing V.P.

Spencer M. Fossel has been appointed vice-president of marketing for Warner-Chilcott Laboratories and Nepera Laboratories, Dr. Leonard A. Scheele, president of both divisions, has announced.

Mr. Fossel was formerly director of marketing for L. W. Frohlich & Co., Inc., New York advertising agency. Previously he was director of marketing for pharmaceuticals for Sandoz Chemical Co. and director of clinical promotion for Organon, Inc. He was president of the Pharmaceutical Advertising Club of New York in 1955.

Abbott Appointments

Guy Labelle has been appointed district manager of Quebec City, Quebec, for Abbott Laboratories, and Henry C. Bodenheimer, district manager in New York City. Max B. Parker has been promoted from professional service representative to the veterinary division of Abbott's sales department.

Emery Promotes Eagleson

David R. Eagleson has been promoted to assistant sales manager of the fatty acid sales department of Emery Industries, Inc., G. W. Boyd, sales manager, has announced. Paul N. Leech has been named to succeed Mr. Eagleson as sales representative for Mr. Emery in the Chicago area.

In his new position, Mr. Eagleson will assist in the direction of all phases of sales of Emery's complete line of fatty acids, including stearic and oleic acids, hydrogenated fatty acids and glycerides, animal and vegetable fatty acids, and castor oil derivatives.

W. Paul Briggs to Receive Remington Medal on Dec. 2

W. Paul Briggs, secretary and exeutive director of the American Foundation for Pharmaceutical Education, will receive the 1957 Remington Medal Dec. 2 at a dinner in New York City's Hotel Roosevelt.

Registered as a pharmacist in 1924, Mr. Briggs operated his own retail pharmacy from 1925 to 1927. He joined George Washington University College of Pharmacy in 1927 as a member of the faculty and was dean from 1932 to 1947.

From 1942 to 1945, he served with distinction in the U. S. Naval Reserve, advancing from the rank of lieutenant to commander. He inagurated the hometown pharmacy service plan for the Veterans Administration during 1946 and 1947 and is still consultant to the Chief Medical Director of the VA. When he accepted the AFPE post in 1951, he had been head of the Pharmacy Service of the U. S. Navy's Medical Service Corps since 1948.

Posts held by Mr. Briggs include: Secretary, National Drug Trade Conference (1936-1938) . . . Secretary, District of Columbia Pharmaceutical Association (1934-1939) . . . and Treasurer, U. S. Pharmacopeia Board of Trustees (since 1940).

Shulton Perfume Chief

Fred Theile has been appointed perfume administrator for the perfume department of Shulton, Inc., George L. Schultz, president, has announced. For the past six years Mr. Theile had been production manager of Shulton's Fine Chemicals Division.

Prior to joining Shulton in 1951, Mr. Theile was with Norda Essential Oil and Chemical Company. A graduate of Rutgers, he served with the Naval Research Laboratories in Washington.

PAUL N. LEECH

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Lilly Biochem. Engin. Dept.

A department of biochemical engineering has been established at Eli Lilly and Company to co-ordinate engineering and processing development work for antibiotic, chemical, and glandular product manufacturing and for the Tippecanoe Laboratories at Lafayette. Sam L. McCormick Jr. has been named manager of the new department.

In his seventeen years with Lilly, Mr. McCormick has had experience in biochemical research and antibiotic manufacturing, and he assisted with the planning and layout of the Tippecanoe Laboratories. Since 1953 he has been a technical consultant for biochemical manufacturing and development.

Cosmetic Career Women launched its fourth year as an industry group with a luncheon-meeting Oct. 1 at the Waldorf-Astoria Hotel. Over 100 members and guests attended. Guest speaker was Mrs. Harriett Moore of Social Research, Inc., Chicago, who spoke on "Motivational View of Cosmetics. Seated on dais: Kay Colton of Morningstar-Nicol, Inc.; Kay Fitzpatrick of TGA; Mrs. Moore; Bernice Peck, Health & Beauty Editor of Mademoiselle, chairman of the day; Mrs. Tess Tinker, retired, of Shulton, Inc., who addressed the meeting briefly; and Mrs. Peg Burrow of Oxzyn Co.

Pfizer Labs Gen. Mgr.

Dr. Jerome J. Van Gasse has been appointed general manager of the Pfizer Laboratories Division, in which position, he will be in direct charge of all division operations inlcuding administration, planning, programming, sales and promotional activities.

Assistant general manager of Pfizer Laboratories prior to his present appointment, Dr. Van Gasse succeeds Thomas J. Winn as head of the division. Mr. Winn, who is recovering from a recent illness, continues as a vice president and director of Pfizer and will act in an advisory and consulting capacity on various aspects of the company's ethical drug business, special projects and marketing and promotional problems.

W-C Clin. Invest. Dir.

Joseph M. White, M.D., has been appointed director of clinical investigation for Warner-Chilcott Laboratories, it has been announced by Dr. Leonard A. Scheele, president. Dr. White was formerly medical director of the Emerson Drug Co.

President of M S & D Int.

Dr. Antonie T. Knoppers has been elected president of Merck Sharp & Dohme International, division of Merck & Co., Inc., it has been announced by John T. Connor, president of the company.

DR. ANTONIE T. KNOPPERS

Dr. Knoppers, who joined the company in 1952, has been vice-president and general manager of Merck Sharp & Dohme International since November,

Medical Director of Lederle

Dr. Benjamin W. Carey has been appointed to the new post of medical director of Lederle Laboratories Division, it has been announced by L. C. Duncan, division general manager. Dr. Carey had previously served as director of the research laboratories at Pearl River, N. Y. He will be replaced by Dr. F. E. Fontaine, formerly plant manager at Pearl River.

Dr. Carey was graduated from the University of Illinois in 1928 and received his M.D. from Harvard in 1932. Upon completing service at Johns Hopkins Hospital and Boston's Children's Hospital, he taught pediatrics at Harvard and Wayne Universities. In 1941, Dr. Carey joined Cyanamid as assistant to the director of Lederle Laboratories in charge of the clinical trial program. In 1942, he became assistant director and in 1944 was appointed director of the laboratories. When Cyanamid consolidated its research activities in 1954, Dr. Carey was given responsibility for the coordination of research and development at Pearl River.

W, H & C Buys Tunley

Welch, Holme & Clark Co., Inc., has acquired Tunley & Company, Inc., supplier of poppyseed oil, walnut oil, and edible palm oil. The Tunley activities will be carried on as Tunley Division of Welch, Holme & Clark Co., Inc.

Albert H. Aubertin, president of Tunley, is retiring. Tunley's Tom Lacognata will continue in charge of sales for the new Welch, Holme & Clark division. Sales offices of the division will be located at 1 Hudson Street, New York 13, headquarters of the parent company. The division have a separate telephone number: COrtlandt 7-2784.

Rexall Drug Company's new Eastern home office and warehouse in West Roxbury, Mass., dedicated by directors of the company Oct. 24, will serve some 1,600 Rexall druggists in the Eastern United States.

Supporting their confidence in your product . . .

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BASIC ANTI-PERSPIRANT INGREDIENTS

Safe, effective, easily incorporated types—for every product variety

FOR CREAMS, LOTIONS, POWDERS AND SPRAYS: **Chlorhydrol** (aluminum chlorhydroxide complex)	FOR GELS **Chlorhydrol S-5** (aluminum chlorhydroxide complex—modified)	FOR STICKS **Chloracel** (sodium aluminum chlorhydroxy lactate complex)
Available in 5 forms . . . granular, fine, medium, impalpable, 50% w/w solution.	In solid form for alcohol type . . . grease and gum free gels.	Available as a 40% w/w solution for use in making cologne-type sticks. Compatible with soaps.

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- effective anti-perspirant action
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- non-destructive to fabrics
- non-irritating to skin
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Pfizer Operations Res. Dir.

Dr. Charles M. Mottley has been appointed director of operations research for Chas. Pfizer & Co., Inc. it has been announced. A consultant to the company since 1956, Dr. Mottley served concurrently as a senior scientist in the Washington, D. C. office of the Stanford Research Institute.

From 1952 to 1956 he was director of the planning division of the Office of the Assistant Secretary of Defense for Research and Development. In that capacity he was also chairman of the U. S. section of the Canada-United States scientific advisory team studying mutual air defense problems. From 1948 to 1952, he worked for the U. S. Air Force, first as an operations analyst and later as an assistant for weapons systems evaluation in development planning.

While on active duty with the U. S. Navy during World War II, he served as a commander in the Bureau of Ships with responsibilities for operational analysis, conservation of materials and quality control. He was executive assistant to Admiral T. A. Solberg when the latter was responsible for the preparation of the targets at Operations Crossroads, the first atomic bomb test at Bikini.

Prior to the war, Dr. Mottley was an associate professor of biology at Cornell University and headed the biological sciences group in the graduate school.

NYQ Asst. Gen. Sales Mgr.

James J. Verde has been appointed assistant general sales manager of New York Quinine & Chemicl Works Division of S. B. Penick & Company, according to Barclay E. Mackinnon, first vice-president of NYQ.

Mr. Verde, who joined NYQ in 1942, served as a sales representative in the New England area and subsequently returned to the New York office to direct the Chicago plant and chemical sales in the Midwest.

JAMES J. VERDE

JDA Honored Guests

Melvin A. Block of the Block Drug Co. was one of the evenings two guests of honor at the Nov. 13 Joint Defense Appeal Dinner which featured the presentation of the Fourth Annual Human Rights Award to former President Harry S. Truman.

National Commissioner of the Anti-Defamation League of B'nai B'rith and a former campaign chairman of the Joint Defense Appeal, Mr. Block was the evening's honored guest along with former Federal Judge Simon H. Rifkind.

The Human Rights Award is presented each year by the American Jewish Committee and the Anti-Defamation League of B'nai B'rith to that individual who has done the most to advance the principles of Americanism and the cause of human rights.

Heads Stokes Int. Div.

Louis R. Garza has been appointed manager of the International Division

LOUIS R. GARZA

of F. J. Stokes Corporation, according to an announcement by A. A. Hutchings, Stokes' vice-president in charge of sales. Mr. Garza was formerly export manager of the Henry Disston Division of H. K. Porter Co., Inc., also of Philadelphia.

M S & D Adv. Mgr.

Edward J. Connor has been appointed advertising manager of Merck Sharp & Dohme, Division of Merck & Co., Inc., according to an announcement by John A. Wells, marketing and advertising director.

Robins Promotes Lunsford

Dr. Carl Dalton Lunsford, research chemist for A. H. Robins Company, Inc., for the past four years, has been promoted to associate director of chemical research.

TOM G. BASTYR

W-C Labs Sales Mgr.

Tom G. Bastyr has been appointed sales manager of Warner-Chilcott Laboraborics, Dr. Leonard A. Scheele, president, has announced.

Mr. Bastyr who joined Warner-Chilcott in 1947 as a sales representative and has served as divisional sales manager in the Southwest since 1949, succeeds William N. Enes who was recently promoted to director of sales for Warner-Chilcott and Nepera Laboratories.

In announcing the appointment, Dr. Scheele commented that Mr. Bastyr represents a second generation of his family's association with the Company. His father, Thomas W. Bastyr, was associated with Warner-Chilcott for twenty years before retiring in 1946. His brother, Chauncey H. Bastyr, is also with Warner-Chilcott as medical sales representative in Hawaii.

Abbott Labs Promotions

Dr. William L. Hartop Jr. has been named head of special projects for Abbott Laboratories succeeding Dr. Edmond E. Moore, who has retired from the company after 28 years of service. Dr. Hartop formerly was assistant head of special projects.

Named head of agricultural farm research is Henry C. Spruth, former manager of the bioassay laboratories.

The bioassay department, headed by Mr. Spruth for twenty-two years, has been divided into two groups, the bioassay section and the nutritional assay group, both of which have been made part of the control department. Named section manager of the bioassay section is Robert T. Olsen. Albin Junnila has been appointed group leader of the nutritional assay group.

Dr. Floyd C. McIntire was appointed assistant head of the biochemical research department and Dr. H. H. Fricke and Dr. J. R. Schenck have been named group leaders in biochemical research.

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A unique and outstanding Givaudan creation, JASMONIS reigns supreme as a jasmin specialty.

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Seldom has any specialty enjoyed such wide and enthusiastic acceptance...for originality, high quality and consistent uniformity. We invite your inquiries regarding JASMONIS.

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D&O Perfume Sales Tech. Dir.

Herbert G. Kainik has been appointed technical director of perfume sales for Dodge & Olcott, Inc. In the industry for more than 25 years, Mr. Kainik has been servicing manufacturers as a consultant on perfuming problems for D&O for the past two years. His new duties will entail servicing a larger segment of the perfume and industrial odorant fields. Requests for Mr. Kainik's services may be made through local D&O representatives or direct to the company.

Plume & Atwood Appoints

Harry T. Silverman has been appointed general manager of the Plume & Atwood Manufacturing Company's Fabricating Division according to an announcement by Thomas I. S. Boak, president. Mr. Silverman, president and treasurer of Dorset Products, Inc., Jackson Heights, New York, is also a director and chairman of the executive committee of the United Whelan Stores Corporation.

Mr. Boak pointed out that this change does not in any way affect the management and operation of the Mill Division. Cornelius Hudak continues as sales manager of Mill Products. John Boak is mill manager.

Snell, Inc. Expanding

A new cosmetics laboratory is among the additional facilities which will be housed in a ten story building purchased by Foster D. Snell, Inc. The building, described by the firm as a "mirror image" of Snell's present location at 29 West 15th Street, New York, is at 28 West 15th Street.

LEE ROSENE

In New Max Factor Post

Lee Rosene, Mid-Western regional sales manager for Max Factor & Co., has been appointed to the newly created post of director of United States sales. Davis Factor, chairman of the board, has announced. Mr. Factor also said that the company plans to increase the number of its regional offices.

65 Yrs. with Lueders

Ferdinand Weber, vice-president and treasurer of George Lueders & Co. celebrated his 65th year with the company Oct. 3 at a dinner attended by employees who have been with George Lueders & Co. twenty-five years or longer. Mr. Weber was presented with a cane banded in silver and inscribed.

Merchant's Chemical Names

Victor F. Mutch, salesman in the Connecticut area for Merchant's Chemical Company, Inc., has been promoted to the position of assistant sales manager of the company's South Norwalk, Conn. office.

First to be served at the opening of J. T. Baker Chemical Company's new cafeteria is George A. Fisher, senior production supervisor, the J. T. Baker employee with the longest record for continuous service—52 years at the Phillipsburg plant. Accompanying Mr. Fisher are Dr. J. R. Stevens, executive vice-president; L. W. Garner, vice-president and controller and Keith F. Kennedy, secretary.

ORVILLE W. B'HYMER

Emery Promotes B'Hymer

Orville W. B'Hymer has been promoted to the newly created position of customer service manager for the fatty acid sales department of Emery Industries, Inc., G. W. Boyd, department sales manager, has announced.

Mr. B'Hymer will coordinate customer relations in a move designed, according to Mr. Boyd, to afford more individualized attention and service for customers of Emery's line of fatty acids. Mr. B'Hymer has been assistant to the sales manager since joining Emery in 1947.

Pfizer Int. Vice-President

Election of Conrad G. Hurlimann as director and vice-president of Pfizer International Subsidiaries has been announced by John J. Powers, Jr., president and chairman of the board of directors. In his new post, Mr. Hurlimann who has been manager of the Southern Europe and Mediterranean areas for Pfizer, will have general management responsibilities. He joined Pfizer in 1956 as a regional director. Formerly executive vice-president and treasurer of Diethelm and Keller (U.S.A.) Ltd., which represents Pfizer in Switzerland and the Far East, he also has been executive vice-president and treasurer of Gane's Chemical Works, Inc., and of the Lawrence Pump and Engine Company. Prior to joining Diethelm and Keller, he served as advertising and sales promotion manager of Maggi Co., Inc.

Griffith Is Glidden Pres.

A. S. Griffith, formerly vice-president of J. B. Roerig & Co., has been elected president of Otis E. Glidden & Co., Inc., Waukesha, Wis., manufacturers of Zymenol. William C. Glidden has been elected vice-president, and Robert F. Ruzicka has been appointed technical director in charge of new product development. Milton G. Peterson, has been appointed to handle advertising and sales promotion.

H. S. RICHARDSON JR.

Crookes-Barnes Names Flynn

Russell F. Flynn has been named assistant manager of sales training at Crookes-Barnes Laboratories, it has been announced by William E. Widerkehr, sales manager. Mr. Flynn has been associated with U. S. Vitamin Corporation, Pfizer Laboratories and, most recently, Warner-Chilcott Laboratories.

Appoint Serpa Vice-Pres.

Thomas R. Serpa has been appointed vice-president of The Sydney Ross Co. and Winthrop Products Inc., in charge of operations in Brazil, it has been announced by David M. Corcoran, president.

Strong, Cobb Account Mgr.

Ralph Corbeil has been appointed account manager of Strong, Cobb and Company, Inc., John N. Eustis, president has announced.

According to Mr. Eustis, the appointment of Mr. Corbeil is another important step in a program of expansion under way at Strong, Cobb.

Conn. C of C District V.P.

L. Tracy Sheffield, president of The Sheffield Tube Corporation, has been re-elected district vice-president of the Connecticut Chamber of Commerce.

FRANK BALL

Mabry Is Chairman of Vick; H. S. Richardson Jr. Is Pres.

H. S. Richardson Jr., former administrative vice-president and assistant to the president was elected president of Vick Chemical Company Oct. 16 at the company's board of directors meeting. E. L. Mabry, president of Vick since 1948, was elected chairman of the board and chairman of the executive personnel committee. H. S. Richardson Sr., Board chairman for thirteen years, retired after 51 years of service and was made honorary chairman of the board.

"Freon" Div. Appointments

A. Hicks Lawrence Jr., has been named manager of aerosol propellent sales for the Du Pont Company's "Freon" Products Division, succeeding Thomas D. Johnson Jr., recently designated assistant director of sales for the division.

Taking Mr. Lawrence's place as manager of specialty products sales for the division is James C. Feldmann, who for the past two years has been superintendent of the plants technical section of Du Pont's Antioch, Calif., plant, newest of four company plants manufacturing "Freon" fluorinated hydrocarbon compounds.

William A. Bours III, for the last three years assistant director of sales for the division, has been named director of sales, succeeding Robert Joyce Thompson, who will retire at the end of this year after more than a quarter century with Du Pont.

Breck Plant Manager

Thomas M. Glynn has been appointed plant manager for John H. Breck, Inc.

Appointed by Rhodia

Paul Brna has been promoted to district-sales manager of the Mid-West Division of Rhodia, Inc., it has been announced by Jacques Leroux, sales manager. Mr. Brna will be responsible for sales of Rhodia's products of the Aromatic, Flavor, and Alamask Division and the Pharmaceutical Division.

Frank Ball, who has had over thirteen years of experience in the aromatic chemical and pharmaceutical field, has been appointed sales representative for Rodia's Mid-West Division. Mr. Ball will contact customers in the Metropolitan area of Chicago, and in Wisconsin, Minnesota, Iowa, Nebraska, Kansas, Missouri, Michigan and North and South Dakota.

DR. MAX TISHLER

MS&D Res. Labs President

Dr. Max Tishler has been elected president of the Merck Sharp & Dohme Research Laboratories, division of Merck & Co., Inc., it has been announced by John T. Connor, president of the company.

Dr. Tishler has been with Merck since 1937, when he joined the company as a senior research chemist. His researches on vitamins, antibiotics, sulfonamides, and steroid hormones have contributed significantly to major advances made by the Merck Sharp & Dohme Research Laboratories in those fields.

Since March 1956, Dr. Tishler has been vice-president and executive director of the Research Laboratories. He is also president of the Merck Institute for Therapeutic Research.

Lawson Is College Trustee

Fred A. Lawson, president and general manager of the E. L. Patch Company, has been elected to the Board of Trustees of the Massachusetts College of Pharmacy.

Merrell Purchasing Agent

Russell E. Schuster has been promoted to purchasing agent for The Wm. S. Merrell Company, according to F. N. Getman, president.

PAUL BRNA

Open the door to Dorisyl

DOW AROMATIC GIVES PRODUCTS THE FRAGRANT APPEAL OF A ROSE-LILY-MUGUET!

Give a hearty welcome to Dorisyl*—it brings aromas of the delightful outdoors to many products!

Recalling a rich Rose-Lily-Muguet bouquet, this fresh, clean aromatic from Dow is still quite new to the field. Creams, toilet waters, soaps, detergents and specialty cosmetics—all these and many other formulations have benefited from Dorisyl. An acetate of a saturated cyclic alcohol, its odor exhibits essential-oil naturalness which complements ionone types of compounds.

Dorisyl is stable, too . . . in price . . . chemically over a wide pH range . . . in quality and supply. You'll want to know more about this outstanding aromatic. And you can —just write, on your letterhead, to THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. FC867G-1

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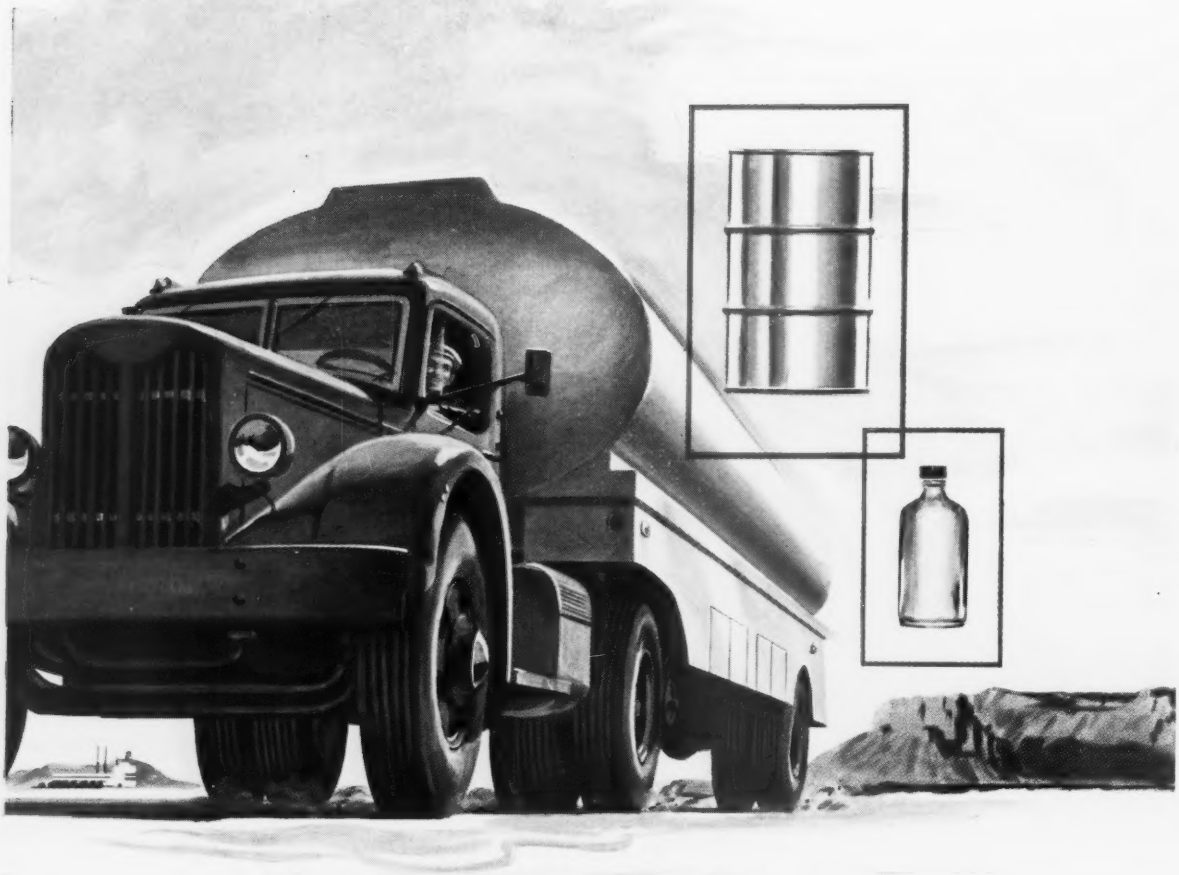

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A new plant to give you high quality, readily available Salicylaldehyde will be in operation at Heyden Newport to supply your needs in 1958.

Modern plant facilities, strictest quality control, and our long experience in the manufacture of quality products will be your assurance of complete dependability with this versatile chemical.

As a reactive intermediate, Salicylaldehyde (o-hydroxybenzaldehyde) has found extensive use in the preparation of coumarin, pharmaceuticals, dyestuffs, and additives for the rubber and petroleum industries. Salicylaldehyde likewise serves the essential oil and plating industries.

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Glycerine is widely used in oil-in-water emulsions in vanishing type creams. Here it smooths application and prevents "rolling." Glycerine is also a needed plasticizer, solvent, and humectant in beauty packs, creams and deodorants. It is used in depilatories based on methyl cellulose. It is preferred in many skin toning and dry skin lotions, and is virtually indispensable in the aqueous phase of industrial protective creams.

Stable in price, dependable in supply, Glycerine offers processors a unique balance of properties: it is hygroscopic, nontoxic, stable, nonvolatile, with excellent solvent power and agreeable taste. For a useful 20-page booklet, "Glycerine Properties and Uses", write to:

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Dolph Schwarz Marks 40th Year with Polak & Schwarz

Dolph Schwarz, managing director of Polak & Schwarz, celebrated on Oct. 1 the 40th anniversary of his joining the firm. His cousin, the late Samuel Schwarz, son of the founder, headed the company at the time. Dolph Schwarz became deputy manager in 1921 and was appointed associate managing director in 1929. To celebrate his anniversary, Mr. Schwarz invited all employees of the Zaandam and Hilversum offices and factories to attend a popular show in Amsterdam.

Mr. Schwarz is a lover of art. Experts are familiar with his private collection of Dutch paintings, including works of Ruysdael and Van Gogh. He is also known to be an admirer, connoisseur and collector of Benin bronzes, manifestations of primitive West African art.

Pfizer Opens Plant in Chile

Laboratorios Pfizer de Chile, subsidiary of Chas. Pfizer & Co., Inc., opened Oct. 10 in Santiago, Chile, which became the fourteenth country in which Pfizer plants are operating. Plants will be opened next year in Italy and Turkey, Pfizer has announced.

At a luncheon at the new plant following the formal inauguration, John J. Powers Jr., president of Pfizer International and senior vice-president of the parent company, paid tribute to Chile's successful measures to develop new sources of power and diversify her economy, and praised the leadership of President Carlos Ibanez, who was present along with representatives of the Chilean government and the Santiago diplomatic corps.

Recalling the discovery of many specific drugs in South America, including digitalis in Chile, Mr. Powers said that Pfizer wished to continue the tradition of research and announced the formation of the Pfizer Chilean Research Institute. Organized under a permanent board of leading Chilean scientists, the institute will develop research programs for the area served by the new plant. One of the first programs, he said, will involve a detailed study of local flora.

Situated on an eighteen-acre site ten miles from Santiago, the plant's earthquake-proof buildings were designed by a team of American and Chilean engineers. With extensive water-softening and purifying equipment and its own emergency power supply, the plant includes a completely air-conditioned sterile area for compounding drugs and the filling of capsules and vials.

ROSS WHITMAN

Whitman Joins Kendall

Ross Whitman, formerly vice-president—chemical operations for Rayette, Inc., has been appointed director of research of the Kendall Mills Division of The Kendall Company.

OSCAR BAERENWALD

Baerenwald in Gillette Post

Oscar Baerenwald has been appointed assistant to the vice-president in charge of manufacturing for The Gillette Company in Boston, Stuart K. Hensley, president of the Toni Division, has announced.

Mr. Baerenwald was recently promoted to head the packaging engineering department at Toni's manufacturing plant in St. Paul. He joined the Toni Division as chief industrial engineer nine years ago.

Goodrich with Nat. Brands

W. Earl Goodrich has been appointed assistant general sales manager of the National Brands Division, Sterling Drug Inc., A. J. Burns, vice-president in charge of sales, has announced.

Mr. Goodrich was employed by Johnson & Johnson since 1949 as territory manager in Boston, and as field manager of its Great Lakes Division, with headquarters in Detroit. He was previously associated with Proctor & Gamble as sales representative in the drug products division.

Pennsalt Taking Option On Another Canadian Site

Pennsalt Chemicals Corporation is taking an option on a plant site in western British Columbia, according to an announcement by William P. Drake, president of the company. Meanwhile, at Oakville, near Hamilton, Ontario, Pennsalt Chemicals of Canada, Ltd. is currently building a plant.

"We are convinced," said Mr. Drake, "That the continued growth of the Canadian economy and the inevitable industrial expansion of the Northwest warrants extension of our chemical manufacturing operations to western Canada to serve the pulp and paper industry, as well as other growth industries requiring industrial and specialty chemicals."

Two Promoted by Lilly

Clayton G. Weigand, M.D., has been named director of Eli Lilly and Company's new medical administration division, and S. O. Waife, M.D., has been appointed head of the company's medical editorial department.

Dr. Weigand engaged in private practice in pediatrics in Omaha for seven years before he joined the Lilly medical department in 1938.

Dr. Waife, who joined Lilly in 1952, will have new responsibilities of an editorial nature and will continue as editor of the "Physician's Bulletin," Lilly publication for physicians.

Joins Labs for Pharm. Devel.

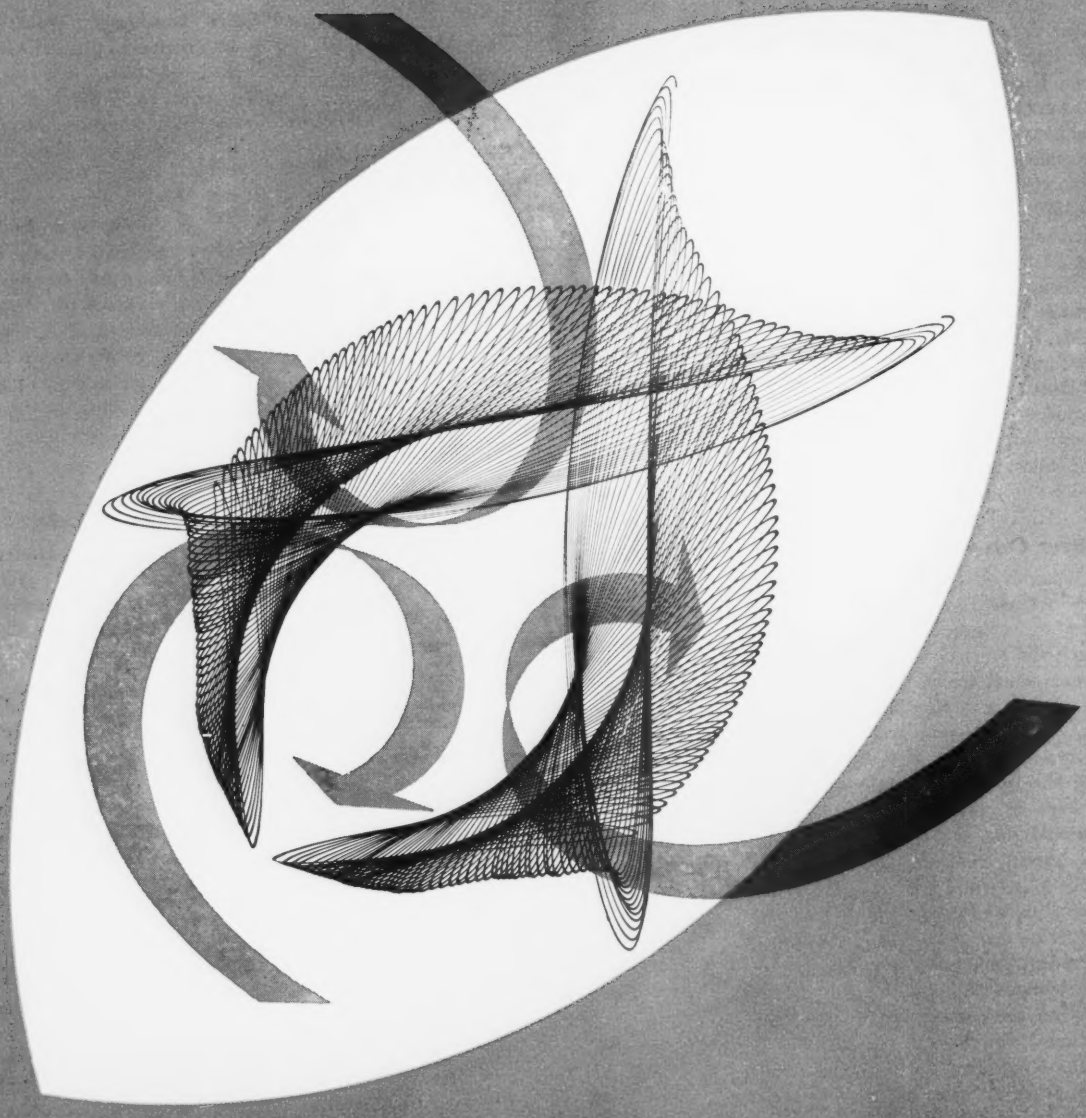
John B. Walsh has been appointed to the product development department of the Laboratories for Pharmaceutical Development, Inc.

Dr. Alfred J. Liebmann

Dr. Alfred J. Liebmann, president of Schenley Research Institute, died in New York City's Bellevue Hospital Oct. 11 a few hours after being struck by a taxicab in midtown Manhattan. He had been with Schenley Industries, Inc. since 1933 as technical director and head of research.

In 1942 he helped organize the Schenley Research Institute which pioneered the commercial production of penicillin for the Allied forces. During World War II he served the War Production Board as a member of Penicillin Producers Industry Advisory Committee.

He is survived by his widow, Mrs. Edna K. Liebmann. three sisters and a brother.



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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Sputnik's Lesson

I remember in the first year of the Big War having a discussion with a group of engineers on the possibility of designing a pilotless plane to carry a load of high explosives to targets in Germany. Several of my friends were plane designers; others worked on engine design and a couple of the boys were designing electronic controls. As the one who knew least about the subject, I was the most positive in my opinions. (Ambrose Bierce, you may remember, defined 'positive' as "being wrong in a loud voice.") While admitting that the engineering arts had advanced to a point where such a project was feasible, I maintained stoutly, that since such a plane with all its complicated controls would cost at least five million dollars each, we couldn't possibly afford it. It was economically impossible. Considering the number that would be needed, the U. S. would go broke before we could do any effective damage. Well, that was before the war really got rolling and five million dollars wasn't even regarded by the government as petty cash.

That wasn't the only time I opened my big bazoo wide enough to swallow my own head. When one of my men came back from the Manhattan Project and was able to tell me some of the problems that had been solved, he told me also about the thousands of complicated instruments that had to be invented in order to control the Genii that had been brought into the world. I voiced the opinion with smug satisfaction, that the Russians would never be able to catch up with us in the atom field because they were industrially immature and they lacked the engineers and scientists skilled enough to devise the necessary instruments. Moreover, since Germany was destroyed the only countries having skilled instrument designers were Sweden, Switzerland, England and the U. S. Of course I didn't know then how much Russia was indebted to the Rosenbergs and their ilk. But even with the data their spies supplied it was a major achievement for such a "backward" country to have matched our atom bomb so soon.

That they did so with both the atom and the hydrogen bombs and then surpassed us in the development of rockets and space vessels, offers an opportunity for speculation. One answer occurs to me: any country capable of developing a great literature is also capable of developing a great science. One seems to be condition precedent to the other. Russia certainly has a great literature. So has England. So have we—not as great as the other two possibly. Ancient Greece had a great literature and was on the threshold of developing a great science when she was destroyed by political incompetence. Germany, Italy and France have great literatures and a great and developing science.

I doubt if there is any difference between the deep, broad, speculative thinking that produces a great novel, play or poem and that which produces the formula $E = MC^2$.

Mexican Plant

By the time this column reaches the printer, I shall be basking in sunny Mexico. There I have designed for Establecimentos Colliere, S. A., the largest of the three plants I have designed for the same firm. The first one was built in Santiago, Chile, the second in Lima, Peru, and now the big one in Mexico City.

Each of the three plants is laid out in accord with principles that I have long advocated. All are single storey structures. All functional divisions are arranged so that each can be expanded individually without reference to and without interference with any other division.

Thus in the Colliere plant in Mexico City, the offices and other internal building services are arranged in the form of an L around two sides of the main factory block, which is several feet higher than the service wings. The offices form the front facade of the building. They are so arranged that they can be expanded indefinitely without colliding with any other function.

The personnel and other plant services form the side facade of the building at a right angle to the office

"Split order picking" made easy! Individual boxes are easily removed from cartons or pallets, each lane is clearly identified to assure accurate selection.

Feed-in end of rack, showing detail of construction. Racks are A-F Live Rails mounted on adjustable frame, can change shape to suit package size. Racks can be designed to accommodate almost any weight load.

A-F LIVE STORAGE RACKS

Fill orders faster, speed distribution

Drug manufacturers and distributors alike are discovering the many benefits of storing varieties of packaged items in A-F Live Storage Racks. Packages are organized and "indexed" like a quick reference filing system. Arranged in fool-proof first-in-first-out order and quickly available. Ideal for order picking and shipping. Here's an example:

Wyeth Laboratories, noted pharmaceutical house, has to keep track of hundreds of different-size boxes between packaging time and final shipping. Their branch warehouses needed a fool-proof, orderly and efficient method of storing and order-picking. A-F engineers recommended the special live storage rack shown here. It consists of hundreds of separate gravity flow lanes. Each deck (between columns) is easily adjusted for height, lanes adjusted for width. The result is a rack that can change shape to accommodate virtually any future changes. Meanwhile, each type and size of package has its own private lane, and every size is immediately available.

A-F Live Storage Racks are built of versatile A-F Live Rails. By design, they can easily be arranged to suit your storage needs perfectly – now and in the future, and they're built in every detail to last. Have A-F submit a proposal on your live storage rack. Write today for complete details.

A-F

A-F founded the package conveyor business in 1901

A-F Conveyors

Custom Engineered Conveyor Systems
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Pan and Rack Washers
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wing. A common entrance and reception room is provided at the junction of the two wings.

The general service wing contains: kitchen, cafeteria and private dining room; toilets, locker rooms, first aid and nursery facilities, watchman's apartment, maintenance shop and boiler room.

Those of you who think American labor laws are excessively onerous should go to Mexico and study Mexican labor laws. For instance, Colliere must provide a fully equipped nursery and a nurse to care for children born while their mothers are in the employ of the company. And the employer cannot evade this responsibility by firing the women who become pregnant. He cannot indeed fire anybody at will without justifiable cause, such as stealing or drunkenness. If a layoff is made for poor business reasons, the employer must pay very substantial severance pay. It is even more difficult to fire an executive or a company official who has been in service for any length of time without paying him a whopping big bonus.

In addition to the general service wing mentioned above there is an external service area containing fuel and water tanks, transformer banks, parking lot etc.

The main factory, forming the inside of the service section L, is designed with a convolute roof of sufficient heighth as to allow a continuous strip of windows above the roofs of both service wings. Hence the manufacturing and packaging departments have outside light on three sides. Ordinarily I don't attach much importance to outside light but Mexico City is 7200 feet above sea level and the atmosphere is clear and bright for a very large proportion of the total day. It is never very hot in Mexico City and the weather is remarkably stable for long periods especially during the dry season.

The manufacturing and packaging departments are arranged in a strip, parallel with a series of sterile and air conditioned rooms on the one side, and with the general warehouse on the other. Expansion of warehouse can proceed in two directions and so can the operating departments. It is anticipated that expansion of operating departments will absorb warehouse space as the warehouse is expanded.

At a later date I expect to publish a more detailed article on this fine company, which for many years has been manufacturing agent for many of the finest pharmaceutical and cosmetic firms in this country. Colliere also represents a number of prominent French firms besides having an extensive ethical line of its own. The plant just built is one of the largest pharmaceutical and cosmetic plants in Mexico.

The simplicity of its layout contrasts strikingly with the layouts of several new pharmaceutical plants that were built in recent years by American firms, who gave their Mexican architects their heads insofar as design and layout are concerned. The result is, that while these factories are striking architecturally, not one of them can be expanded readily and without confusion, and several of them cannot be expanded at all without first tearing down some misplaced service buildings.

Selecting Executives

The selection of an executive is an exceedingly difficult task. I worked with the executive vice president of a big company for a short time before I realized the man was basically stupid and that my first impressions were all wrong. He was a tall, well built, well dressed man with a pleasant voice, good manners and an affable personality. He was graduated from one of the Ivy League schools, belonged to the right clubs and had had apparently a world of experience, judging from the nature of the jobs he had held before coming with the company in question. He knew all the shibboleths of management—except what they meant. He had got this job through his banking connections and, as I learned afterward, he had got his banking connections through his wife's social connections. He looked like a top flight executive, he talked like one, he acted like one. And all he had inside his head was fog. When finally the president of the company, who incidentally had had nothing to do with hiring this guy, asked my appraisal of Mr X I gave it in no uncertain terms. Mr. X moved on in a daze to greener pastures. The point is that you can often be mislead by a man's personality. You may like a guy but that's no proof that he'll be worth a damn on the firing line.

In selecting men for big jobs I may often have been lucky but I have made some first class blunders too. I once interviewed a chap to fill a $15,000.00 job. (This was in the thirties when that kind of money was big dough). This man came to me and he impressed me very much. His technical training and experience were excellent. His experience record was good and with good companies. He had imagination, a keen sense of humor, a lot of color and obviously a lot of drive. But something seemed wrong but I could not put my finger on it. All doubts were swept away when the president of the company for which he was working called up me at home and told me he was delighted that Joe Doaks had such a splendid opportunity. His company couldn't begin to match it because both of the men above J.D. were young men and equally good. I told my friend I appreciated his broadmindedness in not attempting to stand in the way of this young man. I felt I had picked a winner.

But I hadn't. Experience with him showed I was right about his good qualities. He had everything it took to make a great administrator except one—the ability to focus all his talents on the problem in hand and get it solved completely. In due course he was fired. When this happened I felt like tearing the head off his former boss who had recommended him so highly. I felt he had unloaded a lemon on me and my client as well. But before I allowed my temper to get the best of my judgement I did some thinking. I realized then that the company in which he had worked was one of the most well organized in the trade and the chap who had been Joe Doak's boss was an exceptionally capable man. The conclusion was obvious:

is *Sterilization* a factor in your Product or Process?

Because much of the initial research on gas (ethylene oxide) sterilization originated at American Sterilizer, growing numbers of AMSCO-developed installations have been serving production and processing industries for more than eight years.

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We have a complete range of techniques and automatically controlled equipment for standard or special installations . . . for laboratory, pilot plant or production application. Experimental and pilot plant facilities are available through our Research Department . . . and engineers of our Scientific Division are "on call" for consultation on such matters as production processes, techniques or packaging materials related to sterilization.

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If any sterilizing process is or should be a factor in your product . . . outline your problem to us. We can help you!

SCIENTIFIC DIVISION

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Joe Doaks had done a splendid job for his former company because he couldn't have done anything else. He was under the daily supervision of a man who kept him constantly on the rails, whereas in the job I got for him Joe Doaks was his own boss. There are a lot of executives who are superb operators so long as they are being controlled with a tight rein by somebody who is bigger and better than they are.

Recently one of my clients had a similar experience with a man who had excellent training and experience and a first class reputation. But when he was given the responsibility of leading the team he fell flat on his face. He worked like hell but he became so involved with unimportant details that he completely lost sight of the essentials.

I think the only way to size up a guy is to spend quite a bit of time with him so as to size up his reactions to social, political and economic situations quite apart from the business or industry involved. If the job is a key job you cannot investigate the man, his performance and his relations with associates and subordinates too thoroughly.

It is a sad commentary that in the drug and cosmetic industries we have so few really top flight men. I have never been in an organization that had enough of them in spite of management training programs; in spite of vast sums of money expended in sending likely candidates to universities to take special management training. I have seen many cases where obviously second and even third rate men were advanced to important positions simply because the management had not been able to find men better qualified inside or outside their organizations. There is always a hope that with added responsibility and more pay that a number two man will develop into a number one man. One reason for this condition in my opinion is that all the way up the steps of management we refuse to allow executives to spend company funds without loading them down with paper work to justify it; we refuse to let men go it alone; we force them into conferences and committees before they are allowed to do anything to such an extent that they lose all sense of self reliance and they get to a point where they don't *want* to take responsibility.

Concrete Floors

It seldom happens that a concrete floor fails in this country. Most of them crack some but usually not to any great extent. Most of the severe cracking I have seen was caused by frost during winter construction. Occasionally, however, cracking will occur owing to a change in sub floor conditions such as washing out of fill or excessive settlement caused by improper compacting before the floor was poured. Once in a while you will notice cracking around heavy machinery owing to a failure to take the weight of equipment into account before the floor was poured.

A reinforced concreted floor is a homogenious slab or in other words a bridge. Minor ground changes can take place beneath it without affecting the strength of the slab. It is designed to withstand compression—usually 3000 pounds per square foot. It is designed to withstand vibration, even severe vibration imparted to it by machinery; and it is designed to withstand concussion or impact such as occurs when heavily loaded lift trucks roll over it.

In the drug and cosmetic industry factory floors usually are built of six inches of reinforced concrete, cast as an integral, monolithic slab and finished with hardeners and dust proofing materials.

When such a floor is poured, the ground must first be carefully prepared to receive it. The ground must thoroughly be compacted either by rolling, tamping or water settling—the nature of the soil being the determining factor. Sometimes the prepared soil is covered with several inches of sand, gravel or crushed rock.

Occasionally a plant is built on rock or on very hard clay. In such cases, apart from leveling, the soil base needs no further preparation and the floor can be poured directly upon it. The nature of the subsoil determines the preparatory treatment. The main point for the builder to watch is to be sure that the base is wet enough or dense enough so that it will not suck the water out of the freshly poured concrete before it has had time to set up. Concrete floors should be kept moist for ten or fifteen days after pouring until the concrete has had plenty of time to cure.

Bad expansion joints will sometimes cause a floor to crack. Concrete expands as it dries and if the expansion joints are too thin the slab will creep up at the edges and spall off in pieces. Some builders cast slabs 40 by 40 feet; others 40 by 80 feet. I've seen floors cast in 40 by 80 feet slabs that never afterward showed the slightest sign of an expansion crack. This was due to the fact that the slab was properly poured; the concrete was right and contained not too much water nor too little; the slab was finished and cured properly and the expansion joints were of sufficient thickness.

Windowless vs Windowed Labs

The more I study it the more am I convinced that windowless labs are far more desirable than those which are made of glass. Even if the entire exterior of a laboratory building is made of glass, the major portion of the laboratories it contains will still be inside laboratories anyway. Hence the psychological value of an outside outlook is nil. Recently I saw the layout of an all glass lab. It looked like the Lever building. Labs were arranged around perimeter walls and all other labs, constituting the major portion of the space are inside labs. The scientists in the outside or perimeter labs are suffering like hell from radiated heat and glare. Most of the outside windows had to be covered with venetian blinds or painted. But in spite of this when the sun is on the building the air conditioning load is increased to a point where the internal temperature is unbearable. In other words, just when they need the air conditioning they haven't got it. Incidentally a big name architectural firm designed this building and is designing another one like it for one

of the big pharmaceutical houses. All this firm's buildings look alike and are 'real purty' from the outside. But they are inflexible and uncomfortable within.

Everywhere I go, even in labs located in old factory buildings, I find that big windows are painted blue or are covered with venetian blinds. Yet if you asked most of these chemists if they'd like working in a windowless building most of them would say 'no' in spite of the fact that they may now be working in an inside laboratory and may never have been in a windowless building in their lives. Like the guest I had once who wouldn't eat parsnips. I asked him point blank if he'd ever eaten parsnips. He never had but by God he knew he didn't like them! I prevailed upon him to try just one small piece. With an expression of distaste he tried it and to his utter amazement he found it was one of the nicest vegetables he'd ever eaten.

Prejudice is a hard thing to knock down. The president of one company said bluntly he wouldn't let me design a windowless building. He didn't like them. He had never been in one. And he wouldn't have to work in this one. But all the same he's 'agin' it regardless of what could be saved in construction and operating cost. The funny part of it was that at the time he made the pronouncement he was sitting with his back to a large window in his office and the window was completely covered with very heavy drapes through which not a glimmer of outside light could penetrate!

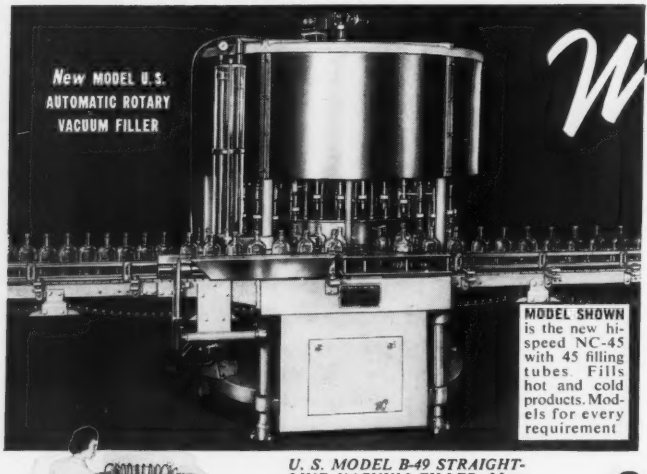
When I say "windowless" I don't mean to exclude the possibility of using glass doors at the end of corridors through which a glimpse of the outside world can be obtained as the lab workers walk down the corridors to go to the John. When windowless labs are designed with plenty of light and embellished with pastel colors they are exceedingly pleasant to work in.

Ultra-high Speed Rotary Tablet Press

A radically new ultra-high speed double rotary tablet press capable of producing up to 3,500 compressed tablets per minute from powdered granulations with single tooling will be featured by the Arthur Colton Company, 3400 E. Lafayette, Detroit 7, in Booth No. 50 at the forthcoming 26th Exposition of the Chemical Industries to be held in the New York City Coliseum from December 2-6.

The new streamlined, 49-die press, which has been designated as the Model 249, provides a compression pressure of 9,000 pounds and has a new compact design of removable twin stainless steel hoppers. New controls for operating the press are conveniently located at the front of the machine. These include handwheel adjustments for tablet weight and thickness, speed control handwheel, a handwheel for jogging the press for setup operations, and a knob pullout slide for quick punch removal. External handwheel adjustments for pressure overload control are located at each side of the press.

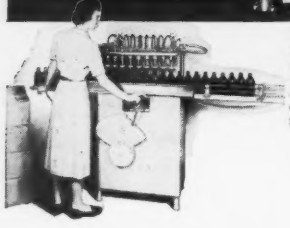
Also mounted on the front of the press is a new combination tachometer-counter unit that indicates die table speed and tablet production count. A new, re-


New MODEL U.S.
AUTOMATIC ROTARY
VACUUM FILLER
MODEL SHOWN
is the new hi-speed NC-45 with 45 filling tubes. Fills hot and cold products. Models for every requirement

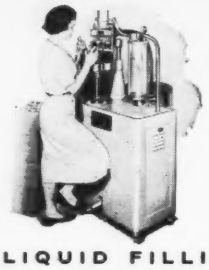
Why it Does Everything So Well

"U. S. AUTOMATIC ROTARY VACUUM FILLER" is the name of a great filling principle. It is built in a series of Basic Models that differ in size and capacity. The Model chosen is custom-engineered to meet the user's specific requirements. Thus, the user gets a universally endorsed long-life machine, that is custom-built to his entire needs and insures dependable operation at minimum cost.

FORTY-FIVE YEARS OF SPECIALIZATION have perpetuated U. S. leadership in the filling of liquid products. Today, the most famous brands in pharmaceuticals, wines, liquors, foods, condiments, household and industrial chemicals, waxes, and detergents pass through the filling tubes of these great machines.



U. S. MODEL B-49 STRAIGHT-LINE VACUUM FILLER. Most automatic one-man filler. With or without discharge conveyor. For all liquids. Changeover for all types containers. Contact parts stainless steel, or plastics. Get Bulletin B-49.



U. S. MODEL B-2 VACUUM FILLER
Continuous production, filling two containers at a time. Automatic product supply. For all containers up to 4½" dia. All liquids and semi-liquids. Portable. Write for Bulletin B-2.

U. S. SIPHON FILLER
For all liquids, foamy products or products that do not permit agitation. Stainless steel tubes, acid resistant glass lined tank. Write for the Siphon Bulletin.

Whatever your liquid filling needs may be, write for engineering recommendations or request the "Rotary Filler Bulletin."

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SPECIALISTS IN LIQUID FILLING AND CONTAINER CLEANING EQUIPMENT

movable stainless steel discharge chute is located in a redesigned streamlined guard that supports the feed frame.

A new die design with a clamp ring that eliminates die lock and avoids die pushup during operation is included in the new Colton Model 249 press. A new upper cam design with added punch head contact area is also a feature of the press.

Powered by a 2-hp motor, the new Colton ultra-high speed tablet press occupies the same floor space as present Colton Model 241 presses.

Among other Colton equipment to be shown for the first time at the Chemical Show is a new Model 232 Compression coating tablet press that applies dry coatings to compressed tablets at extremely high production rates. The machine at the show will be equipped with a new device for feeding capsule-shaped tablets.

A unique demonstration showing how precision hobs for making Colton tablet punches are produced by the engraving process will also be carried out in the Colton Booth.

A new variable drive-equipped No. 16 coating stand for applying liquid coatings to compressed tablets will also be shown for the first time in the Colton Booth along with a No. 685 large-model batch mixer for processing and preparing granulations.

Also shown in the Colton exhibit will be a No. 542 dual oscillating-rotary granulator and sifter, a new

Colton Model 249 Ultra High Speed Rotary Tablet Press

No. T-2433E, 24-tray single-truck drying oven with compact overhead controls and a No. 250 high speed rotary tablet press for slugging operations and large tablet production.

Personnel in attendance at the Colton Booth at the Exposition will include: K. B. Hollidge, executive

New Way to Code Cans, Jars, Bottles

Compact, portable attachment . . . requires no breaking of line . . . delivers up to 600 imprints per minute.

The Gottscho "Model TB" MARKOCODER® machine is a unique, fully automatic, packaging line attachment for coding *bottoms* of cans, bottles, jars, canisters, paper containers at high speeds. Makes consistently clean, permanent ink imprints. Designed for quick code changes, simple maintenance, easy adjustment for different sizes. Offers all the advantages of a fixed-installation imprinter without requiring alteration of present set-up.

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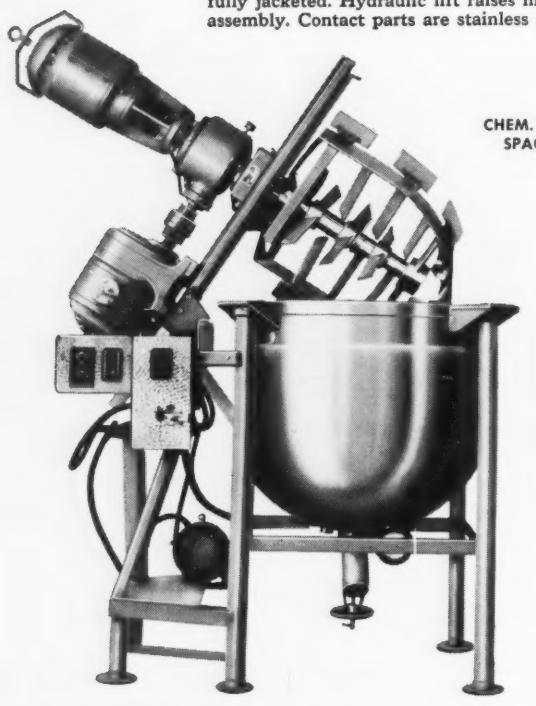
Gottscho

This typical G-W Eppenbach Agi-Mixer is fully jacketed. Hydraulic lift raises mixing assembly. Contact parts are stainless steel.



CHEM. SHOW SPACE 219

only Agi-Mixers give

HOMOGENIZING PADDLE MIXING

at the same time!

... That's why hundreds of users have found G-W Eppenbach Agi-Mixers just about the most useful processing equipment they possess.

Rotating paddles with teflon scraper blades work unrefined material down from the edges and top of the kettle to the high-speed, high shear Homo-Mixer homogenizing head. Here the material is drawn through small clearances between a precision turbine and stator, and ejected upward against an adjustable deflector plate. At this point the paddles again direct the material down, and this cycle is repeated until the entire mass is properly homogenized and blended.

G-W Eppenbach Agi-Mixers are built for rugged, exacting, time-saving service, and have scores of uses in processing pastes, creams, batters, slurries, gums, adhesives, pigments, resinous and latex compounds, and other viscous products.

Use coupon for free 24-page Fact Book describing the whole unusual Eppenbach line.

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vice-president; W. A. Doepel, sales manager; L. P. Gajda, vice-president in charge of engineering; A. R. Pearce, director of customer service; H. C. Edgar, Colton chief engineer and B. Hammer, superintendent of the punch & die plant. Sales representatives in attendance will include: W. I. Smith; C. D. Packard; E. V. Kistner; G. Kohler and J. Reid.

Steel Enclosures for Sterile Packaging

A line of stainless steel enclosures to provide dust-free, sterile conditions for filling and sealing operations of pharmaceuticals and other sensitive materials has been developed by S. Blickman, Inc., 8100 Gregory Avenue, Weehawken, N. J. These enclosures can be supplied for any standard pharmaceutical filling and sealing machine in new or existing installations.

In operation, the enclosure is continuously maintained at a sufficient positive pressure so that the air flow is always outwards even though an access door or delivery port is open. The only air entering the enclosure is through intake baffles at the top of the unit, where the air first passes through an electronic precipitator with ionizing cell or glass fiber filters (depending on the particle size to be removed and technical requirements) and then past a series of u-v lamps for sterilization, before being distributed into the enclosure.

The enclosures are fabricated entirely from Type 304 stainless steel, polished inside and out. All joints are crevice-free, flush welded to help maintain sanitary conditions and to facilitate cleaning. The enclosures are equipped with large observation windows on all four sides, two access doors for adjustment and maintenance, built-in glove ports, and a filling door for replenishing the supply of bottles or ampules. All doors and windows are neoprene rubber gasketed and all corners are vulcanized for reliable dust-tight sealing.

The interior of the enclosure is well illuminated with fluorescent lamps mounted on the top and sides. In addition, the unit contains u-v lamps which sterilize incoming ampules, vials or stoppers. Stoppers are gravity fed from a hopper on top of the enclosure so that the supply can be replenished without opening the machine. When sealing ampules, the exhaust gasses from the burners are vented to the outside through a flexible tube. Interlocking switches on all access doors shut off the u-v lamps over the work area as soon as a door is opened to protect the operator.

Modifications in construction and equipment can be supplied to tailor these enclosures for individual machines or operating requirements.

Automatic Checkweighing Machine

A new line of Selectrol automatic checkweighing machines capable of proving weight accuracies in the range of one part in 5,000 up to one part in 20,000 has been announced by the Exact Weight Scale Co., Columbus, O. The manufacturer states that these new automatic product and package checkweighing machines are available in capacities from one gram up to

100 pounds. Automatic transfer mechanisms place the commodity on, and remove it from, the weighing element with a minimum of impact. The transfer mechanism poses no accuracy limitation on the scale since the transfer mechanisms are not attached to the scale lever system.

The Selectrol model #144 employs a rotary transfer mechanism with one loading station, one weighing station and two discharge stations. Model #145 incorporates an in-line "walking deck" transfer mechanism. Other Selectrol designs use conveyor belts and air powered deflecting gates to shunt the products into numerous weight classification channels.

The scale weighing element is comprised of an extremely sensitive, even lever balance Shadograph Scale. Accurate weight is guaranteed by the use of counterweights on the scale weight platter—assuring the weighing of all commodities against a known predetermined weight. Shadograph Scales provide a visual weight reading dial with a frictionless optical light indicating system.

The control system consists of direct reading crystal photocells on adjustable mountings alongside the optical reading scale dial. A printed circuit transistor amplifier is employed. This design offers extreme circuit stability plus direct correlation of dial reading.

Optional accessories include recorders, counters, visual and audible signaling devices.

Models #144 and #145 operate at speeds up to 30 weighings per minute, depending upon capacity and accuracy required. Other models are available with speeds up to 120 weighings per minute.

Counter with Totalizer Keeps Automatic Proportioning Records

A newly developed counter and totalizer enables processors to maintain an accurate inventory check on each ingredient being fed into a proportioning system, it has been announced by Richardson Scale Company, Van Houten Avenue, Clifton, N. J.

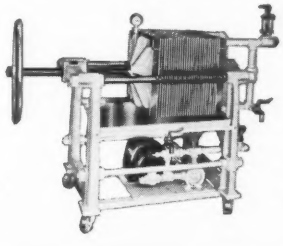
The new counter records the weight of each ingredient used during any batch or during any required interval of time, and also totalizes the weight of all ingredients used. Sizes are available for recording anywhere up to a hundred ingredients.

When any ingredient is used in a batch, the inventory counter for that material will record in pounds the actual weight of material withdrawn from storage and used in the batch; and simultaneously the totalizer counter will also record the actual weight in pounds. If a batching operation involves 200 lbs. of ingredient "A" and 300 pounds of "B", the register for material "A" will record 200, the register for ingredient "B" will record 300, and the totalizer counter will record 500. When the batch is repeated, ingredient "A" register will show 400, ingredient "B" 600, and the totalizing register 1000 lbs.

ERTEL EQUIPMENT SERVES
The DRUG and COSMETIC Industry

ERTEL MODEL EFS FILTER

Designed for use with any type filtering medium. Uses 10 to 40 filtering surfaces 12″x12″ square. Filter media creates its own gasket, thus rubber washers are eliminated. Nickel plated bronze or all stainless steel circulatory passages.



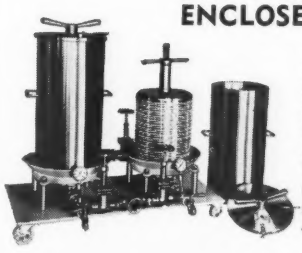
EU MODEL UTILITY FILTER

Comparison and operation records prove this 16″ square filter unmatched in performance. Fully described in catalog. Ask for your copy.

ERTEL ASBESTOS FILTER SHEETS

Available in ten uniform grades for all filters up to 25″ square. Manufactured under rigid control, they are acid treated to meet Ertel standards of low leachable calcium and iron content. As a double check, these pads are analyzed periodically by an independent laboratory . . . reports of these tests are available at any time. A complimentary set-up of these pads for your present filter is available upon request.

ECD MODEL ENCLOSED DISC FILTER



Incorporates the outstanding feature of independent closing of filtering elements thus providing a positive seal. A unit built by engineers for trouble-free operation. Twin cylinder unit illustrated—also available with single cylinder for smaller capacities.

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COMPLETE LINE OF *Liquid Handling Equipment*
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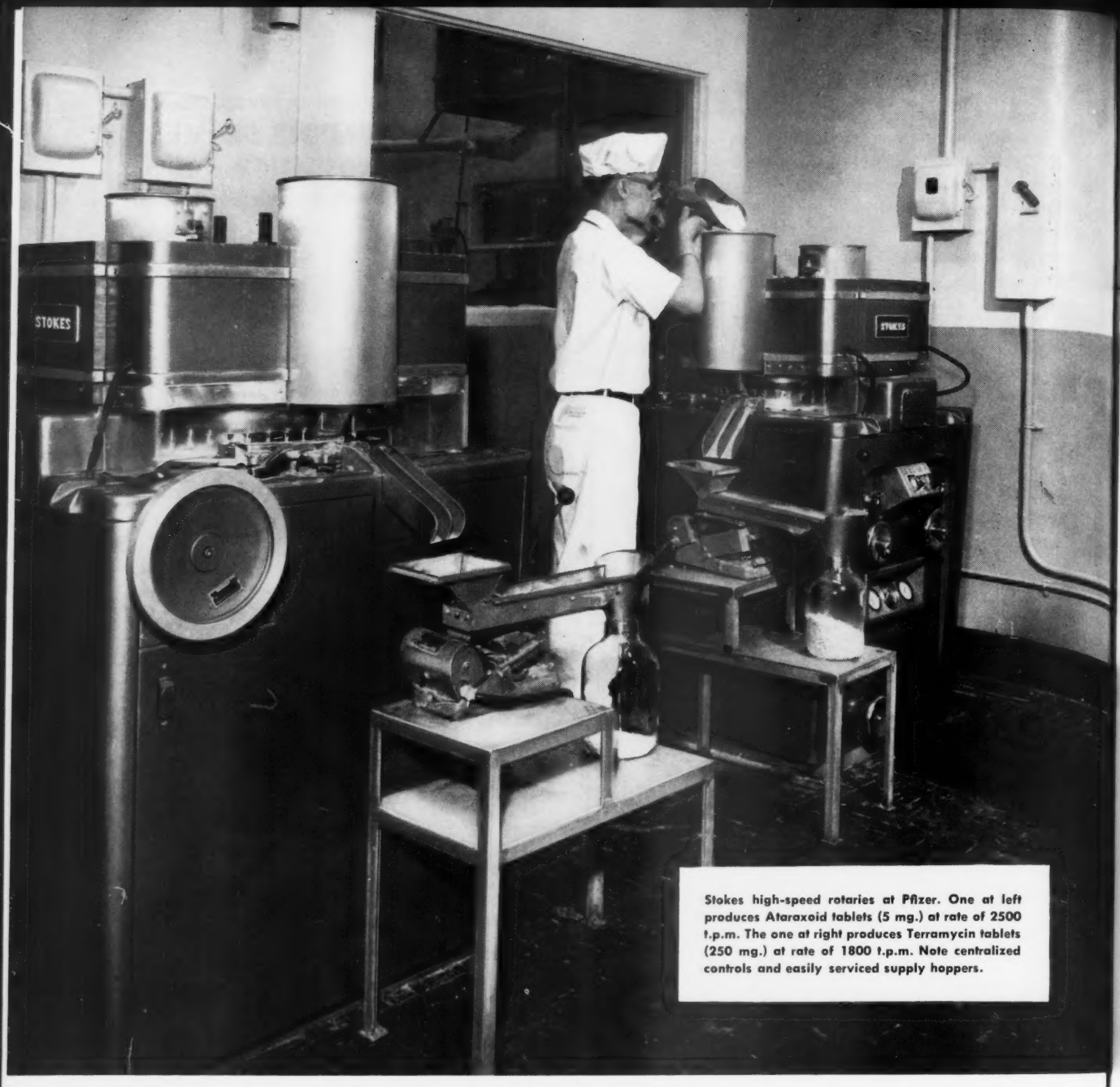
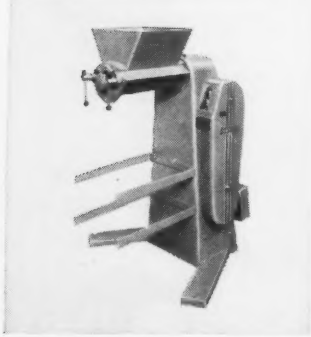
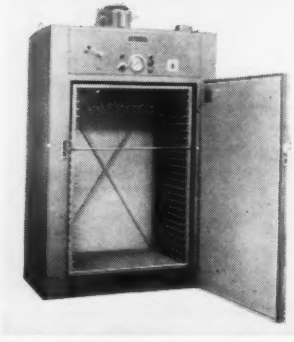


Stokes high-speed rotaries at Pfizer. One at left produces Ataraxoid tablets (5 mg.) at rate of 2500 t.p.m. The one at right produces Terramycin tablets (250 mg.) at rate of 1800 t.p.m. Note centralized controls and easily serviced supply hoppers.

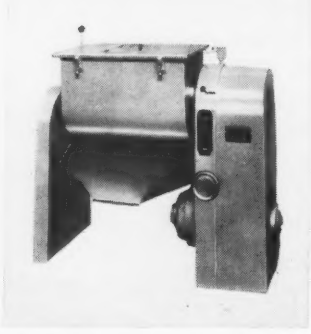
STOKES AUXILIARY EQUIPMENT FOR PHARMACEUTICAL MANUFACTURERS



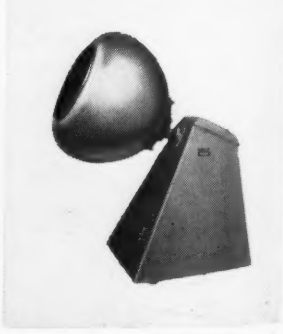
Granulators employ the efficient oscillating principle for breaking up moistened or dried aggregates. In a range of capacities



Drying Cabinets use recirculating air; steam or electric heating under automatic control. Models with 5, 16 and 24 trays.



Granulating Mixers, for blending wet or dry materials, feature dust-tight lid, safety shut-off, controlled tilt for unloading.



Coating Pans. Model 1-D stand uses 16″ to 60″ stainless or copper pans, or polishing pans with removable canvas drums.

Chas. Pfizer & Co., Inc. Uses Stokes 540 Machines for High-Speed Tabletting

Now, there are three Stokes 540 Rotaries at Pfizer... producing Terramycin and Ataraxoid tablets, Capette and Stimplant pellets.

Chas. Pfizer & Co., Inc., were so pleased with the trouble-free performance of their first Stokes high-speed 540 Rotary that two additional units were purchased and are in production at Pfizer.

One Model 540 produces Ataraxoid tablets at the rate of from 2500 to 2700 tablets per minute. The tablets are elliptical shaped and imprinted with the Pfizer name. Ataraxoid is a combination of Pfizer's anti-arthritic and anti-inflammatory agent, Sterane, and the tranquilizer, Atarax. A second machine produces Terramycin and other antibiotics at a rate of from 1500 to 1800 tablets per minute.

A third Stokes 540 is used to process Capette and Stimplant pellets at 2000 per minute.

Terramycin, Ataraxoid, Sterane, Atarax, Capette and Stimplant are trademarks of Chas. Pfizer & Co., Inc.

These cylindrical shaped tablets are separate (diethylstilbestrol) pellet implants used to produce more tender and flavorful poultry and meatier cattle, respectively.

Compactly designed, Stokes Model 540 Rotary Tabletting Machines require minimum floor space. Their low construction enables inspection of the hopper contents from normal eye level. Longer tool and machine life is assured by centralized pressure lubrication and greater overload protection.

New, lower roll cams prevent double impressions by embossed punches. Anti-jump retainers prevent tool damage when the machine is accidentally run dry. Built-in vibration mounting eliminates the need for special foundations or permanent attachment to the floor.

Find out today how the Stokes 540 Rotary Tabletting Machines can help increase your own production rates . . . and bring new economy to your operations. Contact your nearest Stokes office for complete information on these machines—and for assistance by Stokes' extensive research facilities and the Stokes Advisory Service.

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F. J. STOKES CORPORATION
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Compounder's Corner

Lanthanum Antiperspirant Salts

A series of lanthanum salts of the lower alkanesulfonic acids were prepared by W. D. Roll and G. E. Cwalina (*J. Am. Pharm. Assoc. Sci. Ed.* 46:578,1957) for the purpose of evaluating their astringent, antiperspirant and/or deodorant activity.

Since the aluminum ion's antiperspirant activity is regarded as being due to its ability to block the sweat glands because it is an effective protein coagulant, it seems that the Hofmeister series provides theoretical grounds for the belief that lanthanum may be of superior value. The most effective coagulant in the series is lanthanum; therefore it would seem likely that this electropositive trivalent metal would be the most effective antiperspirant agent.

A series of antiperspirant salts was prepared by Collins and evaluated on a molar basis with respect to the cation. The following compounds were studied and are listed in order of decreasing effectiveness: lanthanum sulfamate, lanthanum methionate, cerium methionate, cerium sulfamate, lanthanum chloride, aluminum chloride, zinc methionate, aluminum sulfamate, zinc sulfate, aluminum methionate, aluminum methanetrisulfonate, and aluminum sulfate.

The lanthanum salts were made by mixing saturated aqueous solutions of the sodium salt of the alkanesulfonic acid and lanthanum chloride, collecting the precipitate, washing it with distilled water and drying at 100°C. The salts prepared were two ethanedisulfonates, one ethanetrisulfonate, two propanemonosulfonates, two propanedisulfonates and one propanetrisulfonate. No solubility data for the salts are given, and results of tests concerning antiperspirant/deodorant activity are promised in a later publication.

Comment: The paper would certainly have been more valuable if even solubility and other properties of the salts had been reported along with some indication as to antiperspirant activity. The Collins reference is to a 1954 thesis at Purdue University which we have not seen. Toxicity studies, more important than any other factor, were not *mentioned.*

Sustained Release Tablet Patent

U. S. Patent 2,793,979 was issued on May 28, 1957 to E. V. Svedres and assigned to Smith, Kline and French. The first claim of the patent covers "A sustained release pharmaceutical tablet comprising non-sustained release granules of a selected solid medicament, sustained release granules comprising said medicament dispersed in solid fatty material resistant to disintegration and slowly dispersible in the gastro-intestinal tract, each of said sustained release granules including, in addition to said medicament and said solid fatty material, a carrying matrix of dried syrup solids from a dehydrated granulating solution, and the sustained release granules taken together forming a matrix holding the non-sustained release granules, said tablet maintaining a therapeutic level of the medicament over an extended period of time.."

In accordance with this invention the time delay material is a fatty acid, alcohol or ester, alone, or an admixture thereof, and can be modified with a waxy material of natural or synthetic sources. More specifically, the fatty acid may have from 10 to 22 carbon atoms.

The fatty alcohols may have from 14 to 31 carbon atoms and may be, for example, lauryl alcohol, cetyl, stearyl, myristyl, myricyl, arachyl, carnubyl or ceryl alcohol.

The esters may be mono-, di- or triglyceryl esters formed from fatty acids having from 10 to 22 carbon atoms.

The modifying wax material is an ester of a fatty acid having from 12 to 31 carbon atoms and a fatty alcohol having from 12 to 31 carbon atoms. Examples are myricyl palmitate, beeswax, cetyl palmitate, spermaceti, myricyl cerotate, carnauba wax, cetyl myristate, palmitate or cerotate, myricyl melissate, stearyl palmitate, stearyl myristate or lauryl laurate. The selected wax may be 25 per cent by weight of the time delay material.

The invention is applicable to any solid medicament or any liquid medicament not required in large quantities.

Conventional inert fillers, such as terra alba, lactose and starch can be added to the solid medicament as desired. When reduced to a powder, before being mixed with the time delay material, the solid medicament and filler, when used, will be of a size to pass through a screen of 20 mesh or smaller in size. A particle size of 35 mesh is preferred. In the time delay granules the solid medicament, alone or together with filler, when used, should not be in excess of 200 per cent by weight of the time delay material.

The granulating solution for the time delay granules comprises water, preferably in amount of from 15 to 30 per cent by weight and in no event more than 50 per cent by weight and from 70 to 85 per cent by weight and in no event less than 50 per cent by weight of a monosaccharide, such as, for example, dextrose or levulose or a disaccharide, such as, for example, sucrose; lactose or maltose, or a polysaccharide; such as, for example, dextrin, or mixtures thereof.

Alternatively, the granulating solution may contain from 75 to 90 percent by weight of water and from 10 to 25 per cent by weight of gelatin or a natural plant hydrocolloid, such as acacia, tragacanth, agar, or an alginate, such as sodium alginate, pectin, or chondrus may be used in the same proportions. An aqueous solution of a hexahydric alcohol, such as sorbitol or mannitol can also be used as the granulating solution.

The granulations formed after the addition of the granulating solution are formed through screens having a mesh of from 8 to 12. After the thus formed granules are dried, they are forced through a screen having a mesh of from 12 to 20.

The time delay granules and the non-time delay granules are now thoroughly mixed, both types of granules having been formed to have approximately the same size and when tabletted to provide continuously a desired therapeutic level of the medicament over an extended period of time. Preferably all of the granules contain approximately the same amount of medicament, the non-time delay granules being about 25 per cent to 100 per cent by weight, and preferably 50 per cent, of the time delay granules. The mixture of granules is then tabletted in a conventional tableting machine.

The final tabletted product comprises time delay granules which include a matrix of dried solids of the dehydrated granulating solution, these dried solids on the time delay granules linking the time delay granules together to form a matrix holding the non-time delay granules.

The non-time delay granules can be tabletted in combination with groups of time delay granules, the groups utilizing various different time delay materials or different amounts of time delay material, or both, to provide different times of release for each group to maintain continuously a desired therapeutic level.

Cosmetic Research

By implication, and directly, we have beaten the drum for a number of years for increased research expenditures in cosmetics as well as in pharmaceuticals, since promotion expenditures are skyrocketing and becoming less productive. Our premise is that it is easier and cheaper to sell a new, good product to the consumer than merely to rework the pitch and resell the same product. On the other hand, we are not foolish enough to believe that the world will beat a path to the door of the new mouse trap unless there is a barker persuading passers-by to try the new path.

Outstanding success stories in the industry have been home cold waving and aerosol hair sprays and both of these point up the same moral: when a new product really does something that couldn't be done as well before, and really shows results, consumer resistance will be at a minimum. The odorless depilatory, squeeze bottle and stick deodorants, aerosol shaves are all examples of products that are real improvements in terms of effectiveness and ease of use that were easily translated into sales volume. These had to come out of somebody's research department.

"Chemical Week," September 14, points up some current activity along these lines. Rubinstein (*not Rubenstein*) is ready to market a progesterone cream with 10,000 international units of progesterone per ounce. Another active hormone, thyroid extract, is being considered by a company that has done well with Royal Jelly. The German and French literature indicates extensive activity along the lines of "physiological cosmetics" by European manufacturers. Their testing methods, however, often consist of equal parts of assertion and test (one horse and one rabbit), which is not considered adequate in this country.

There may well be a certain volume of research effort in the direction of including potent medicinals in cosmetic products to obtain marked changes in skin; we believe that really only small, hesitant steps have been made. Without advocating expensive fundamental research, which must indeed be done but is too expensive and too speculative for most commercial organizations, we nevertheless feel that the already available knowledge of the physiology, pharmacology and biochemistry of the skin is not as widespread in the industry as it should be. The dermatologists, willing to help when called upon, often lack adequate chemical and formulating knowledge to help in the making of a practical, useful product. The formulating chemist is often lost in conducting clinical studies to determine efficacy and is not qualified to handle toxicity studies. When the proper combination of skills, backed up by management's conviction that the new products will sell easily and well, becomes available to the cosmetic industry, outstanding progress in cosmetics that will do things to the skin can be expected.

Meanwhile, much effort, worthwhile but certainly not of fundamental importance, must be spent in devising quality control methods suitable for large scale manufacture and distribution. It is unlikely, however, that this type of research, will originate new and outstanding cosmetic products.

Antistatic Agent

Pennsalt Chemicals Corporation has announced the availability of ethylsulfonylethanol ($CH_3CH_2SO_2CH_2CH_2OH$), a new chemical developed for a wide variety of applications in the cosmetic, pharmaceutical, textile, and chemical industries.

Of interest to the cosmetic field are the highly effective antistatic properties of ethylsulfonylethanol combined with extremely low toxicity. Laboratory testing of ESE as a removable antistatic agent for fibers indicates valuable uses for the product in permanent wave preparations, shampoos, and other formulations where antistatic properties are desirable. Maximum safety is assured by low toxicity and lack of skin irritancy, high boiling point, and high flash point.

An unusual combination of properties including miscibility with water and many polar organic solvents, reactivity typical of aliphatic alcohols, and mild humectancy suggest evaluation of ESE as a base for cosmetics and pharmaceutical preparations.

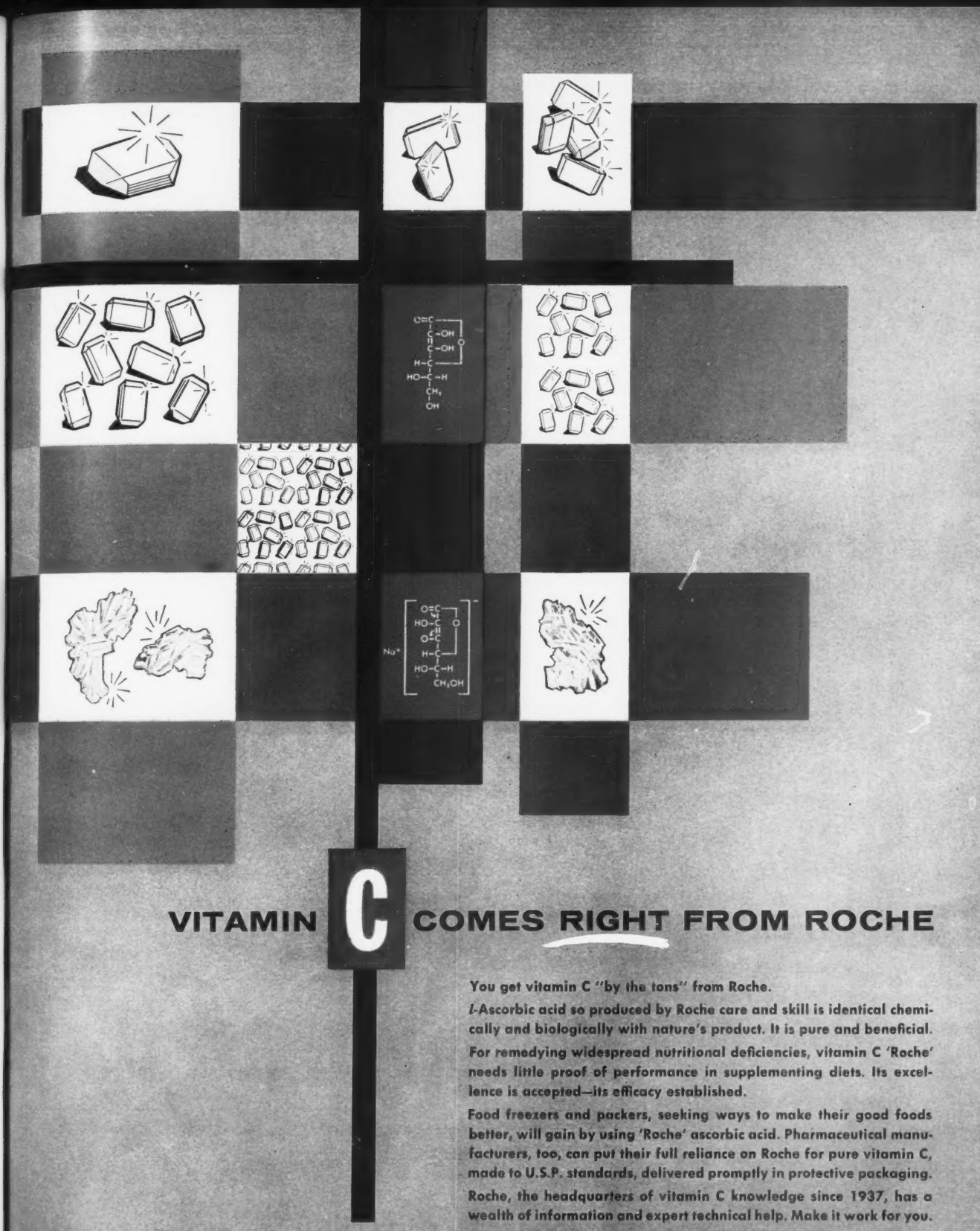
Ethylsulfonylethanol is available as a developmental chemical from Pennsalt pilot-plant facilities. Samples of the Product and a booklet describing chemical properties and details of application may be had on request from Pennsalt Chemicals Corporation, Department P, 3 Penn Center, Philadelphia 2, Pennsylvania.

Salicylamide Suspension

Johnson & Johnson has developed and is in the process of marketing "Liquiprin," a salicylmide suspension for pediatric use as an analgesic and antipyretic. The product possesses a number of useful plus factors. First, salicylamide has had growing acceptance as a substitute for and improvement on aspirin, primarily because it combines aspirin's effectiveness with stability, reduced gastric irritation and a taste that is easily covered. Next, the product has been formulated to provide dosage in drops for infants and finally, the bottle is spillproof and contents can only be removed by means of the dropper provided.

"Liquiprin" is a raspberry flavored suspension containing one grain or 65 mg. of salicylamide per cc. of suspension.

Comment: A number of years ago I formulated a salicylamide suspension ot provide 200 mg. per cc. and this could easily have been modified to provide the equivalent of two aspirin tablets (650 mg.) per 5 cc. teaspoon, but management couldn't see it. Oh well, it takes all kinds of people and brains to make a world.



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VITAMIN C

Laboratory Data Sheet

ROCHE

l-ASCORBIC ACID, U.S.P.
COATED *l*-ASCORBIC ACID—97.5%
SODIUM *l*-ASCORBATE

- The first to achieve commercial production of vitamin C by the famous Reichstein synthesis.
- Roche produces every useful type of *l*-ascorbic acid to meet virtually every manufacturing need.
- Single uniform lots as high as 3000 kilos, saving you assay costs.
- All types are uniform, readily soluble and easy to handle.
- Roche guarantees highest quality, held to rigid specifications.
- Quick delivery from strategically located warehouses.
- Packaged to protect original quality in sealed tamperpruf containers.

l-ASCORBIC ACID, U.S.P. 'Roche'

TYPES	DESCRIPTION AND USES
GRANULAR TYPE 20-60	100% (±) passes through 20 mesh. 95% is retained on 60 mesh. Similar to granulated sugar in particle size. Satisfactory for direct addition to dried granulations.
FINE GRANULAR TYPE 40-80	100% (±) passes through 40 mesh. 95% is retained on 80 mesh. A free-flowing product similar to table salt in particle size. Recommended for tablet granulations where fine powder is considered less suitable because of denser packing.
SUPERFINE GRANULAR TYPE 60-100	100% (±) passes through 60 mesh. Approximately 25% remains on 100 mesh. 45-50% passes through 100 mesh and remains on 200 mesh. 25-35% passes through 200 mesh. A very fine free-flowing crystal suitable for dry gelatin capsules or tableting. Useful in dry mixtures, food supplements.
FINE POWDER TYPE 100	100% (±) passes through 100 mesh. Produced by grinding crystalline material. Non-abrasive on tableting dies. Widely used for granulations, solutions, food supplements. Minimizes fractionation of particles in dry mixtures.
ULTRA FINE (MICRO) POWDER TYPE 325	Minimum 99% through 100 mesh. Minimum 90% through 200 mesh. Milled extremely fine. Practically devoid of abrasive action on cutting dies. Screen tests above 200 mesh are unreliable because of variations in technique, equipment, humidity, static charges, etc. Sedimentation tests and measurement of particle size in microns reveal that 60-70% of Roche material is smaller than 44 microns (equivalent to 325 mesh).
AMPUL TYPE	Very fine crystals—easily dissolved. Minimum color. Specially produced and tested for use in parenteral solutions. See Roche technical brochure "Notes on Vitamin B_1 and Vitamin C Parenteral Solutions" for complete details.
TYPE F	Especially produced for use in the food industry. Free-flowing, will not dust or clump, dissolves easily. U.S.P. in quality. 100% through 50 mesh. 98-99% remains on 200 mesh.

COATED *l*-ASCORBIC ACID—97.5% 'Roche'

DESCRIPTION

Coated ascorbic acid 97.5% 'Roche' is a fine, white, or nearly white powder. It is pure U.S.P. ascorbic acid powder coated with ethyl cellulose. The manufacture of coated ascorbic acid is licensed under Patent No. 2,410,417 to Roche and customers of Roche.

SPECIFICATIONS

Particle Size	100% through 16 mesh screen 75-92% through 40 mesh screen 45-80% through 60 mesh screen 35-60% through 100 mesh screen
Assay	Minimum 97.5% *l*-ascorbic acid
Identity test	Positive for *l*-ascorbic acid
Loss on drying	Negligible

USES AND DATA

Ethyl cellulose coated ascorbic acid 'Roche' has these advantages in pharmaceutical tablet manufacture:

- Small size, high potency (250-500 milligrams) tablets of light color can be made from dry granulations with very little excipient.
- Aids in eliminating chipping and capping during compression.
- Retards discoloration, mottling during abnormal storage conditions.
- Reduces contact of ascorbic acid with reactive materials.
- Rapidly available in aqueous solution for assay.
- Provides a tablet with slower release of ascorbic acid, tending to reduce localized acidity sometimes experienced with high potency tablets.

FOOD MANUFACTURERS

- Manufacturers of cured meats can use this type to advantage for retarding smokehouse activity, and for better protection in spice mixtures. It may also provide longer protection of color and flavor during storage and display.

DATA ON PARTICLE FINENESS

Based on U.S.P. XV-pages 934-5, N.F. 10, pages 702-3; *Langes Handbook of Chemistry 9th Edition, page 911

The fineness of "powders" is described in both the U.S. Pharmacopeia and National Formulary in terms which are related to the number assigned to a standard sieve made of woven wire cloth. The size of wire, and sieve opening are standardized together with permissible variation in both average and maximum openings.

Sieve Number	Sieve Opening in Microns	Sieve Opening Mm.	Permissible Variation in Average Opening Per Cent	Permissible Variation in Maximum Opening Per Cent	Wire Diameter Mm.
50	297	0.297	± 5	± 25	0.170-0.253
100	149	0.149	± 6	± 40	0.096-0.125
200	74	0.074	± 7	± 60	0.045-0.061
#325	44	0.044	± 5	± 60	0.036

Standards are established for defining the fineness of powdered chemicals, together with a technique for determining the uniformity of fineness. The types of powders described in the U.S. Pharmacopeia and National Formulary do not represent the full range of particle sizes commercially available. No procedure is given for the determination of particle size in the "ultra-fine" or "micro powder" range, sometimes referred to as No. 325. This requires a sedimentation method and measurement in microns. Ordinary sieving methods are inaccurate.

The variation possible in the standard sieves plus such variables as the motion applied to the screen and physical characteristics of the powder being screened affect accuracy and duplicability of screening tests. Particle size specifications based on mesh sizes must always be regarded as nominal rather than as strictly accurate limits of particle size and distribution.

SODIUM *l*-ASCORBATE** 'Roche'

This is the sodium salt of *l*-ascorbic acid. It is available as an odorless, tasteless, anhydrous, fine white powder or fine granular substance.

The antiscorbutic activity is in molecular proportion to *l*-ascorbic acid, one milligram of the sodium salt being equivalent to 0.889 milligram of the acid, or one milligram of the acid equivalent to 1.124 milligrams of sodium *l*-ascorbate.

Highly soluble in water—62 grams/100 ml at 25°C, 78 grams/100 ml at 75°C. Aqueous solutions are unstabile, easily oxidized on exposure to air, or other factors which affect *l*-ascorbic acid.

The pH of a sodium *l*-ascorbate solution is from 5.6 to 7.+ as compared with a pure *l*-ascorbic acid solution at pH 2.3-2.5. The more neutral characteristic of the sodium salt recommends it for high dosage oral forms where gastric sensitivity to lower pH might be undesirable. It is useful in combination with ingredients which would react unfavorably under more acid conditions. Products can be buffered to a suitable pH by combining sodium *l*-ascorbate and ascorbic acid together.

Commercial forms of sodium *l*-ascorbate are not recommended for preparation of parenteral solutions. It is more satisfactory to prepare suitably buffered solutions of 'Roche' ampul type *l*-ascorbic acid, using sodium bicarbonate according to the special Roche method described in our technical brochure, "Notes on Vitamin B_1 and Vitamin C Parenteral Solutions."

Sodium *l*-ascorbate is of value as an antioxidant for use in comminuted meats and in curing pickles for hams, bacon, and corned beef. Because it is the salt of *l*-ascorbic acid (vitamin C), a substance naturally occurring in meats and identified in the U.S. Pharmacopeia, it may be preferred to antioxidants in the "chemical additive" class.

THESE PRODUCTS ARE FOR ANTIOXIDANT USE ONLY. IF USED IN FOOD PRODUCTS, NO CLAIM FOR NUTRITIONAL VALUE CAN BE MADE.

****Sodium d-isoascorbate, 'Roche'**, antioxidant with virtually no vitamin C activity. A white, free-flowing crystalline material. Slightly less soluble than *l*-ascorbic compounds. When replacing *l*-ascorbic acid, 23% more should be used to obtain equal antioxidant activity and 8% more when replacing sodium *l*-ascorbate. These differences are due to the presence of both sodium and water of crystallization which are inactive. Literature on request.

d-Isoascorbic acid 'Roche'—antioxidant. Similar to sodium d-isoascorbate described above. Useful where acid reaction or absence of sodium is desirable. 10% less than sodium d-isoascorbate or 10% more than *l*-ascorbic acid (because of water crystallization) is required for equivalent antioxidant activity.

VITAMIN DIVISION • **HOFFMANN-LA ROCHE INC.** • NUTLEY 10, NEW JERSEY

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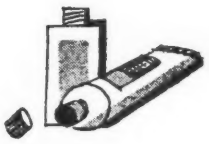

Advancing Therapy

New Tranquilizers

Four new families of powerful tranquilizing agents—some of them exhibiting twenty times the strength of chlorpromazine in animal tests—have been synthesized in a chemical "breakthrough" revealed to the American Chemical Society during its 132nd national meeting in New York City.

Well over a thousand compounds have been studied in the Lilly laboratories. Two of them—ethoxybutamoxane and chlorethoxybutamoxane, already shown to have twenty times the strength of chlorpromazine—belong to a class of compounds called benzodioxanes.

Another class of tranquilizers has been developed from a different adrenergic blocking agent by E. R. Shepard, D. E. Morrison, Buting, L. A. White. One series of compounds in this class is as active as chlorpromazine when tested in animals.

A group of compounds closely related to these has been synthesized by Albert Pohland, and H. R. Sullivan. In animal tests these appear to be somewhat more potent and to act more specifically on certral brain mechanisms.

The fourth class of tranquilizers was synthesized by Mills, N. R. Easton, and Boren. In this group, one type of modification has produced a number of drugs ranging in potency from one to ten times that of chlorpromazine in animal tests.

Youth Elixir

According to a report originating in Paris and transmitted by the United Press, cow embryo extracts (placental extract?) when injected into geriatric patients raised the metabolic rate, "makes old blood young again" and gives the patients new strength and buoyant spirits. The report was made by L. Binet and C. Jeramec-Tchernia to the French Academy of Science.

Comment: On the basis of this statement it is possible to believe anything you wish about the quality and authenticity of the reported work. Nevertheless, from past experience with newspaper reports and the uneven quality of French research, I am prepared to wait (I expect to wait for a long time) for confirmation of this report. I await confirmation coming from controlled tests on a large number of anonymous patients, indications as to mechanism of action and some attempt to determine the active ingredient in the embryo homogenate. I hope that some of my promotion friends will also wait for this confirmation before they take off for outer space.

Nobel Prize for Bovet

Dr. Daniel Bovet, Swiss-born and head of the department of pharmacology in the Italian Health Institute, was awarded the 1957 Nobel Prize for Medicine. The award was made for Dr. Bovet's work in originating synthetic antihistaminics and synthetic curarizing compounds. The prize-winning scientist has published more than 250 papers in the fields of microbiology, therapy of infectious diseases, pharmacology, pharmacodynamics, toxicology and endocrinology, and any active worker in medicinal chemical research has on one or another occasion leaned heavily on the work of Bovet and his collaborators.

Penicillinase Production

The recent isolation of penicillinase-constituitive mutant strains of *B.cereus*, forming very large quantities of the enzyme extracellularly in casein hydrolysate without the need for stimulation with penicillin (J. Sneath, *J.Gen.Microbiol.*, 13:561,1955; Kogut, Pollock and Tridgell, *Biochem.J.*, 62:391,1956), has provided a means by which a stable, high titer preparation can be assured by a process described by M. R. Pollock (*J.Pharm.Pharmacol.*, 9:609, 1957).

The medium consists of casein hydrolysate and sodium citrate with sodium hydroxide added to pH 7.2. Magnesium sulfate and ferrous ammonium sulfate are also added to the culture medium. Using an inoculum of washed spores, the culture is left standing at any convenient temperature between 18 and 37°C until growth becomes visible and the mixture is then shaken at 35 to 37° aerobically for 16 hours. Efficient aeration is essential for maximal enzyme formation. The liquid is recovered by centrifugation and can be sterilized by filtration through a membrane filter, which involves about 20 per cent loss. Sintered glass or asbestos filters may absorb most of the enzyme. The sterile filtrate should contain 2,000 to 10,000 units of the enzyme per cc. Penicillinase may be isolated from the liquid and finally crystallized by a procedure described by Kogut, Pollock and Tridgell and by Pollock, Torriani and Tridgell, *Biochem.J.*, 62:387,1956.

Xylohydroquinone Oral Contraceptive

Results of a 2 years' trial in 727 women by S. N. Sanyal et al (*Acta Endocrinol.* 23: Suppl. 28: 72, 1956) demonstrated that oral m-xylohydroquinone, the active principle of Pisum sativum (the common field pea), can reasonably reduce the pregnancy rate from the usual level. m-Xylohydroquinone proved to be non-toxic and effective in all age groups and all parity groups. Its use was not accompanied by any risk of abortion, permanent sterility, or deformity of the baby if a woman failed to respond to treatment.

The pregnancy rate was reduced by 52 per cent and 69 pre cent in 2 groups of women who took oral m-xylohydroquinone twice each month on the 16th and 21st day of the menstrual cycle. Continuation of the drug during pregnancy did not result in abortion, and all live babies born to mothers who had taken the drug were all normal and without deformity. Of 33 women who discontinued the drug, 8 conceived within 3 months. No immediate or cumulative toxicity of the drug has been noted.

m-Xylohydroquinone is not toxic to the human system. Results of clinical examination of pulse rate, blood pressure, hemoglobin, total red blood cells, white blood cells, differential count of white cells, and albumin and casts in urine were practically identical in 63 untreated (control) women and 80 women treated with m-xylohydroquinone twice a month for 9 months or more. Furthermore, although the drug is anti-vitamin E, it cannot fully counteract the effect of vitamin E in the system because the storage of vitamin E is too great and the vitamin is constantly being replenished from normal food.

Dimethylaminoethanol

Dimethylaminoethanol has been found by C. C. Pfeiffer et al., reporting in *Science*, to have brain-stimulating powers. Small doses are said to create a mild and pleasant degree of nerve stimulation that lessens daytime fatigue and allows shorter and sounder sleep. In schizophrenics at higher doses the chemical caused increased muscular activity and greater talkativeness. In other applications, DMAE relieves periodic headaches, functional bowel distress and chronic fatigue. The mechanism by which the compound operates may be related to the fact that it may serve as a precursor for acetylcholine in biological processes.

Alkylated Ethisterones

Studies were initiated in 1954 by A. David, F. Hartley, D. R. Millson and V. Petrow of British Drug Houses Ltd. and presented to the 1957 British Pharmaceutical Conference, and had as their object the preparation of an orally-active progestational agent more potent than ethisterone. Largely from biogenetic considerations, 6-methylethisterone was selected for prior study. The liver was known to deactivate steroid hormones in several ways including β-hydroxylation at C(6). By blocking this centre with a methyl group, it was hoped to prevent such oxidation and thereby enhance biological activity by the oral route. Biological study of 6β-methylethisterone proved disappointing, the compound being only about one-third as potent as ethisterone. The 6β-ethyl derivative was virtually devoid of activity. 6α-Methylethisterone, in contrast, was found to be approximately seven-times as active as ethisterone in the Clauberg test.

The structural analogy between ethisterone and methyltestosterone, which can both be regarded as 17-substituted testosterone derivatives, prompted an investigation of the effect of alkylation of ethisterone at C(21). Bioassay of the ethisterone homologues revealed an interesting gradation of properties. 21-Methylethisterone was found to be about three-times as active as ethisterone. Increase in the size of the alkyl substituent led successively to a decrease of activity, the *n*-butyl derivative being less active than ethisterone itself. Having established that the biological activity of ethisterone was enhanced by a 6α-methyl substituent and an alkyl group at C(21), the 21-methyl and 21-ethyl derivatives of 6α-methylethisterone were studied to see whether the effects were additive. That, broadly speaking, they were found to be. Thus, 6α:21-dimethylethisterone was approximately 12-times and 21-ethyl-6α-methylethisterone nine-times more active than ethisterone in the Clauberg test. 6α:21-Dimethylethisterone is thus the most potent orally active progestational agent based upon 10:13 - dimethylperhydro*cyclo*pentenophenanthrene that has yet been reported

Anti-T.B. Drugs

It is generally agreed that the best way of using the standard antituberculous drugs—isoniazid, streptomycin, and *p*-aminosalicylic acid (P.A.S.)—is to give them daily, in combination, and for a long time. Not infrequently, it is difficult to maintain therapy with a combination of standard drugs, and one or other of two new oral and relatively non-toxic preparations, 'Nupasal-213' and 'Dipasic,' have been widely used in substitution.

Nupasal-213 (*o*-hydroxybenzal isonicotinyl hydrazone), also known as 'Salizid,' and 'I.N.S.H.,' is a derivative of isoniazid. In the body it is partly broken down into isoniazid.

Dipasic (isonicotinic acid hydrazide-p-aminosalicylate) is a chemical combination of isoniazid and P.A.S.

It therefore appeared worth while to conduct a controlled trial of nupasal-213 and of dipasic to get more information about their actions.

A trial was made by G. W. Allen, W. McNaught and A. W. Lees (*Lancet*, 273: 609,1957) of four antituberculous drug regimes—isoniazid 400 mg. daily plus P.A.S. 20 g. daily, nupasal-213 2 g. daily plus P.A.S. 20 g. daily, nupasal-213 2 g. daily, and dipasic 1.2 daily.

The clinical response and degree of resolution of non-cavitatory disease were comparable in all the groups. Cavity closure at six months, however, was less common in the nupasal group (76.5 per cent), and still less common in the dipasic group (68.2 per cent), than in the isoniazid plus P.A.S. group (83.3 per cent) or in the nupasal plus P.A.S. group (89.5 per cent).

Bacteriological results demonstrating a parallel emergence of isoniazid and nupasal resistance in the groups treated with single drug therapy, and the protective effect of supplementing nupasal therapy with P.A.S., suggest that nupasal is equivalent in effect to isoniazid. Dipasic therapy was inferior to therapy with nupasal alone (and thus presumably to isoniazid alone) in achieving sputum conversion, and gave rise to the emergence of isoniazid-resistant organisms. There was no evidence that, if P.A.S. is split off from the dipasic in the body, a sufficient amount is formed to prevent isoniazid resistance or to give rise to P.A.S. resistance.

Morphine Antagonists

It is not difficult to obtain substances which antagonize the narcotic action of morphine in animals according to F. H. Shaw, S. Gershon and G. A. Bentley (*J. Pharm. Pharmacol.* 9:666, 1957). This is in distinction to the difficulty of obtaining an antagonist to the barbiturates, where only a few out of over 100 compounds tested possessed this property. Furthermore, in man, the barbiturate antagonist bemegride counteracts the depression of vital reflexes rather than eliciting a return to consciousness. Amiphenazole is particularly useful in restoring consciousness to morphinized dogs and man. There seems to be only slight structural specificity required for a morphine antagonist. In the grossest sense any compound with one or more *N*-containing rings (5 or 6 membered) and one or more amino side chains would appear to be a potential morphine antagonist. What is surprising is the discovery that certain antihistamine drugs also possess this property. Cyclizine and chlorcyclizine are as effective as amiphenazole and THA (tetrahydro-aminoacridine) in dogs (and cyclizine in man). Three other antihistamine substances investigated were also very effective. Amiphenazole and THA possess only slight antihistaminic activity.

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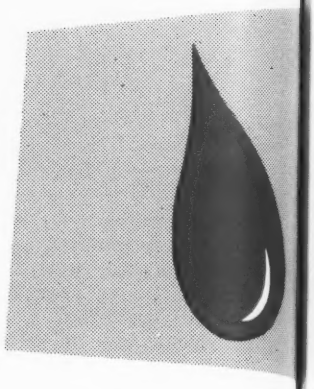

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Perfumer's Shelf

German Synthetic Linalool

According to a note in the "Perfumery and Essential Oil Record" for September 1957, Badische Anilin & Soda-Fabrik, in Germany, is producing and offering for sale in Great Britain a synthetic linalool. The odor of the synthetic is said to be of excellent quality and free from any foreign by-note.

No mention is made of the process by which the synthetic linalool is being made but the German company's plant and know-how in high pressure acetylene chemistry may well be applicable.

Cola and Tea Flavor

The ingredients contributing to the flavor of cola are listed in the *Givaudan Flavorist* as a series of aldehydes—cinnamic aldehyde, citral, vanillin, octanal, nonanal, benzaldehyde and decanal; alcohols—linalool, terpineol, geraniol, citronellol and other terpene alcohols; esters—acetates of linallol, geraniol, citronellol and terpineol; acids—acetic, butyric, caproic, capric, lauric and caprylic; eugenol and traces of nitrogen compounds.

Tea flavor is a more complex mixture: alcohols include hexenol, linalool, geraniol, hexanol, benzyl alcohol, octanol, phenylethyl alcohol, citronellol, butyl and isoamyl alcohols, phenylpropyl alcohol and unsaturated terpene alcohols; acids include acetic, propionic, butyric, valeric, isovaleric, caproic, hexenoic, heptoic, caprylic, palmitic, benzoic, phenylacetic and salicylic acids along with an unidentified acid; esters include geranyl octoate and valerate and methyl salicylate; aldehydes and ketones are hexenal, acetophenone, isovaleraldehyde, butyraldehyde, benzaldehyde, hexanal, isobutyraldehyde, isopropylaldehyde, propylaldehyde and methylethylacetaldehyde; other compounds include phenol, cresol, acetylpyrrole, methyl mercaptan and methyl sulfide.

Cologne Odor

The major ingredients of the Cologne water odor are bergamot, lemon and orange oils. Neroli, modified by petitgrain adds a flowery note whose fresh odor brightens all other components, from top note to the final residual odor. Lavender improves the harmonious blending of main odors with the spicy ingredients like resemary, thyme, etc. and strengthens the flowery shading.

Synthetics in their purest state, like citral, linalyl acetate and methyl anthranilate, improve the radiating power of the natural oils.

Other important factors are the quality of the alcohol and the time allowed for aging.—K. Bergwein—Seifen - Ole - Fette - Wachse, 83:631,1957.

Valerian Oil

Freshly distilled valerian oil is a yellow-green to brown-yellow oil with a penetrating and spicy odor. On aging the oil becomes thick and dark brown because of polymerization and breakdown. It acquires an extremely unpleasant odor and an acid reaction because of the presence of free valeric acid. Along with the acid, the odoriferous components are bornyl valerate, small amounts of bornyl formate, bornyl acetate and bornyl butyrate. Camphene and pinene are also present. Borneol may crystallize from old oils because of breakdown of the esters.

Valerian oil is used little or not at all in perfumery because of the very unpleasant valerian odor and high price. The commercial oil cannot be used as such but must be washed with dilute sodium bicarbonate solution to remove the free acid. This washing is especially necessary with older oils. The repulsive odor is thus removed, being replaced by an aromatic, woody note that varies between vetiver and patchouli. The perfumer who tries this simple experiment will be pleasantly surprised by the change in odor. The purified oil may be usefully applied in tobacco and leather types.

Basil Oil

Basil oil is a light yellow liquid with an intense aromatic odor. Very small amounts can be used in mixtures to give surprising effects. The characteristic ingredient of the oil is methylchavicol, about 25 per cent, which gives the anise and fennel-like odor. Another ingredient is linalool and small quantities of cineol are present.

The herbal character of the oil, which is not raw and sharp as in other essential oils, but charming and soft, suggests application in reseda compounds. The base is naturally the typical reseda components, reseda ketone and resedol from the flowers and enriched geraniol fraction. The iris note is also important in the composition. The terpeneless basil oil should be used since it is milder than the untreated oil and a powdery note is introduced, especially in combination with iris. The floweriness of the mixture is improved by the addition of jasmin.

Basil provides a final polish to mimosa flower compositions. These are based, classically, on p-methylacetophenone and other aromatic ketones. The natural flower notes like jasmin, ylang, rose, muguet, cassie and violet are indispensable; heptine ester and various hexenol esters are necessary to provide the green note.

Agathosma Gnidioides

The leaves of *Agathosma gnidioides* Schlechter contain 0.6 to 1.0 per cent of an oil consisting of about 60 per cent of myrcene, about 5 per cent of dipentenyl tetrasulfide, about 25 per cent of linalool isobutyrate, 5 per cent of *bela* pinene, about 4 per cent of a mixture of limonene and dipentene and probably small quantities, totalling less than 1.1 per cent of isobutyric acid, d-linalool, salicylic acid and methyl salicylate. The oil was extracted by steam distillation and fractionated at 13 mm. in a current of carbon dioxide. Myrcene was identified as the maleic anhydride adduct; the linalool isobutyrate by hydrolysis with al-

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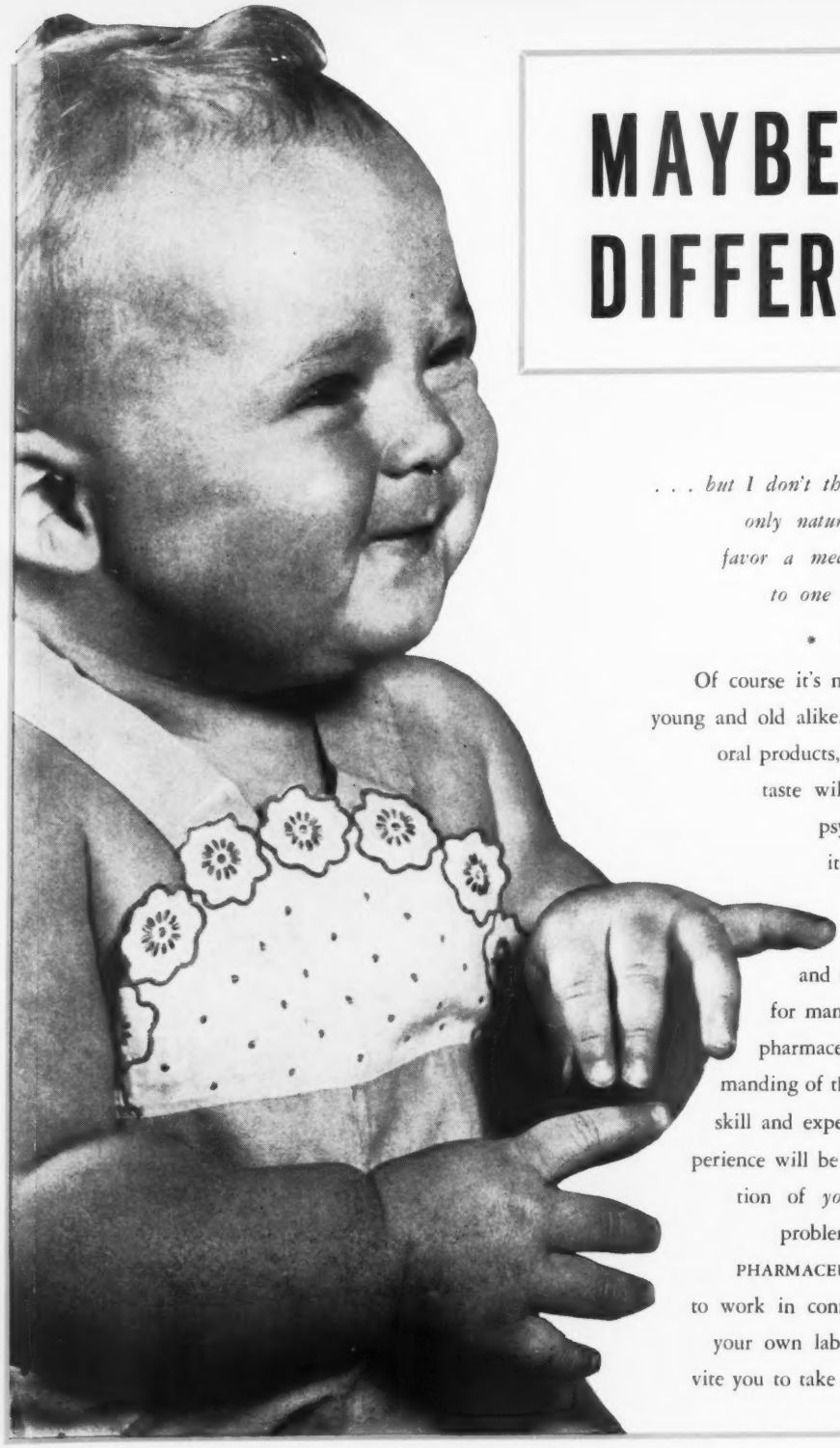

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coholic potassium hydroxide; the pinene by oxidation to nopinic acid after removal of myrcene by polymerization over sodium and reaction with maleic anhydride; limonene and dipentene by odor and physical constants. The dipentyl tetrasulfide, with a specific gravity of 1.096, is optically inactive, and has been assigned a symmetrical structure. When subject to slow steam distillation, the tetrasulfide forms a trisulfide and a pentasulfide.

Tablet Disintegration

Improvement in tablet disintegration time was obtained by B. F. Cooper and E. A. Brecht (*J. Amer. Pharm. Assoc. Sci. Ed.* 46: 520, 1957) by incorporating surfactants in certain tablet formulations. Improvement was significantly greater in tablet formulations containing starch than in those containing no starch. A synergistic action appeared to exist between the surfactant and starch, resulting in a faster disintegration time when compared to tablets containing neither surfactant nor starch, surfactant alone, or starch alone. The best method of incorporating the surfactant consisted of spraying the granule surfaces with a volatile solution of the surfactant. The granules were thus coated with a film of surfactant. A reduction of surface tension at granule interfaces occurred, thereby promoting more rapid softening of the tablet, more rapid absorption of disintegration medium by starch, and subsequently more rapid disintegration of the tablet. In combination with surfactants, starch added before granulation gave better results than starch added after spraying. Starch added after spraying probably formed a coating on top of the surfactant coating, thus interfering with or delaying the action of the surfactant. In addition, the loose starch granules probably were not uniformly distributed throughout the tablet due to the tendency to classify or migrate downward during compression. The addition of a lubricant after spraying also probably delayed disintegration due to a protective coating formed around the granules. It would be desirable to use a surfactant having lubricating properties as well as the property of improving disintegration time. Of the surfactants studied which decreased disintegration time, none of them in the concentrations used was suitable as lubricants.

In general, no significant correlation between aging and change in disintegration time could be demonstrated. However, two specific tablets, magnesium oxide and tricalcium phosphate, showed a pronounced increase in disintegration time after aging.

The four surfactants giving the shortest disintegration times (Aerosol OT, Aerosol MA, Aerosol OT-B, and Aerosol AY) are similar in certain chemical and physical properties.

Sterilization

Dr. Lawrence P. Garrod, of St. Bartholomew's Hospital in London, delivered the first Becton-Dickinson Lecture at Seton Hall College of Medicine and Dentistry, discussing the general subject of difficulties in sterilizing surgical equipment.

Pure steam at a pressure of 1 atmosphere, giving a temperature of 121°C, and acting for 20 minutes, will destroy any form of bacterial life. If higher temperatures are attained, the period of exposure can be shorter. It provides the only satisfactory way of sterilizing fabrics, rubber and water solutions; it can also be used for most instruments. It may fail if air displacement is incomplete, if the chamber is superheated, or if materials to be sterilized are packed so tightly that steam cannot penetrate them; finally, the contents of the chamber may be recontaminated if air admitted to dry the load is not adequately filtered.

Exposure to air at a temperature of 160°C for 1 hour is lethal to all bacteria. This method of sterilization is required for oils and powders, and is also the best for certain instruments, particularly syringes. The only difficulty it presents is the maintenance of a uniform temperature throughout the chamber of the oven used.

Germicidal solutions or gases are useful for sterilizing various objects which cannot be heated. If they are to sterilize completely—i.e., to kill spores as well as vegetative bacteria—the choice is limited; phenol will not do this, halogens and mercury perchloride will do so, but react with metals, and among liquid germicides the choice is almost restricted to formalin. The available gases are formaldehyde and ethylene oxide. The latter has an important future when equipment becomes available for its proper use: it is sporicidal, and has been shown to be capable of sterilizing catheters, cystoscopes, etc., although exposure for 8 hours at 37°C was necessary.

Perhaps the easiest thing to sterilize would be a perfectly smooth glass ball. It can be heated in any way desired, or immersed in almost any kind of germicide, even a strong mineral acid, since it reacts with none of them. It has no crevices in which bacteria can lurk, out of reach of a solution. Things which are difficult to sterilize lack one or more of these properties. They are damaged by heat, or damaged or imperfectly penetrated by chemicals.

Good scalpel blades are made of ordinary, and not stainless, steel. They can, of course, be sterilized in a formalin solution containing a chemical such as sodium nitrite, to prevent rusting. Heat may be considered preferable, but autoclaving causes some staining, due to exposure to air while the blade is still hot and wet. Dry heat also causes slow oxidation: a blade kept in an oven for several days acquires a yellow color, and even a short exposure, not enough to cause this visible change, may well reduce its sharpness, although this is not an easy thing to prove. This effect could not occur in the absence of oxygen. Then why not sterilize scalpel blades by dry heat in a sealed metal container in an atmosphere of nitrogen? They could perhaps remain in this and be delivered as required by a device like a razor blade dispenser.

Syringes should of course be sterilized by dry heat, and must be built to withstand this. An alternative to prolonged heating in an electric oven is exposure to infra-red lamps in an insulated chamber through which syringes in their cases pass on a moving belt. Here a temperature of 190°C is produced for about 15 minutes only.

The more rigid types of catheter, such as those made of silk web, suffer severely if heated. They are usually sterilized with formaldehyde gas, and when this is done provision should be made to ensure that the gas penetrates them thoroughly. Natural diffusion cannot be expected to ensure penetration throughout the great length and very narrow bore of, for instance, a ureteric catheter. Ethylene oxide admitted to a chamber after a preliminary vacuum may well be the best answer to this problem.

Catgut is a unique substance in surgery, because its origin—the submucous layer of the intestines of lambs—is such that the material is almost certain to contain pathogenic clostridia. If not sterilized during manufacture, it is one of the most difficult of all materials to sterilize afterwards: heat spoils it, and most chemicals cannot penetrate such dense material and then destroy highly resistant spores embedded in it. Catgut is the outstanding example of a material which should be sterilized by the manufacturer and not by the user.

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From Research to Reality

Skin Research

Seborrhea

The seborrheic diathesis relates to the skin secretions and the tendency to what we call seborrheic dermatoses.

Briefly, the normal flow of sebum helps to maintain pliability of the skin and assists in regulation of body temperature. It protects from overwetting or drying, from infection and irritation and from absorption of noxious substances. It is fungistatic and bacteriostatic and contains the precursor of vitamin D.

The seborrheic diseases, whose number is legion, cover the whole span of life.

In infancy we see seborrheic dermatitis, melia, and sometimes grouped comedones or acne.

At puberty, in adolescence, and in adult life, acne appears with the pityriasiform eruptions, eczematous dermatitis, and pyodermas, as sycosis and infective flexural dermatoses.

In middle age, rosacea comes into the field with keratitis in a proportion of cases, and other seborrheic ills may raise their heads.

The history of our views on seborrheic disorders over the half century reflects that return of dermatology from the wilderness. From a limited conception of infective skin disease propounded by the great Unna, we now realize that there is an underlying systemic motif to all these varied expressions.

Climate and race bear significantly upon sebaceous secretion and body odor. Most seborrheic dermatoses are aggravated by tropical conditions. In industry somewhat comparable environmental factors may produce similar effects.

Hormonal effects are particularly manifest at puberty but are often seen as transient ills in the newborn from maternal hormonal influences.

Diet is another influence of some importance. Seborrheic disorders are described in standard works on nutrition as evidence of deficiency, and these particularly relate to deficiency of the vitamin B complex, iron, and proteins—all essential constituents of epidermal enzyme systems.

Acute infections of the upper respiratory tract, influenza, and fevers constantly present seborrheic complications. Organic disease of the nervous system may cause seborrhea. It is seen in encephalitis lethargica and occasionally with tumors and operations in the region of the hypothalamus.

Hereditary influences are not the least of those general considerations which are important in assessing seborrheic behavior. We often see the family trait in the texture of the skin, the tendency to greasiness, scurf, alopecia, acne, rosacea, and other manifestations.

These broad facts emphasize the thesis that in the seborrheic certain fundamental instabilities and tendencies exist which are expressed through the skin but which are tied to humoral influences, particularly endocrine, emotional, nutritional, or metabolic. Stress, acting through these and other channels, as through climatic and toxic influences, will particularly determine seborrheic disorders.

No more than a mention can be made of the myriad of resident and the transient organisms on the skin. In their nonpathogenic role is is conceivable that they play some part in the general economy parallel with that of the organisms in the bowel. Our concern here is with the transition from a saprophytic to a pathogenic role, which may follow some change in the underlying seborrheic soil under stress, for the infective dermatoses constitute the major seborrheic ills.

Disturbances of secretory functions of the skin in this wide sense and susceptibility to infection are not the only expressions of stress in the seborrheic. There is increased sensitiveness of the skin with a readiness to itch and wheal.

As well as greasiness, sweating, and epidermal thickening, there may be disturbances of vasomotor tone, with a tendency to waterlogging, a chronic nonpitting edema and podginess of the tissues, perniosis.

Similar secretory and tissue changes are seen in the mucous membranes lining the respiratory and gastrointestinal tracts.

In the alimentary tract there is in addition interference with absorption and nutrition, causing depression of health and nutritional deficiency.

There is also emotional instability and a tendency to react adversely to "the weariness, the fever and the fret" of daily life. This is particularly seen in adolescence and at the menopause, when worry, fatigue, anxiety, excitement, or depression may precipitate or aggravate a seborrheic reaction. We see it in the anxiety of the student at examinations and of those in love. It is a common reaction of the obsessional perfectionist, distressed at the irresponsibility of his mates. The instability of the menopause, with its mild depressions and anxieties and the burden of occupational and domestic affairs, may, through psychological stress, play a prominent part in etiology. Wittkower (1947) has emphasized the obsessional traits in some patients, and it is particularly true of those with chronic infective sycosis and flexural dermatitis.

We must not overlook the fact that the skin affections themselves are often a source of emotional stress, so that a vicious circle is easily established.

It follows that treatment in the first instance is often properly directed to the low-grade infection of the skin which is the clinical expression of disease. But if complete and permanent relief is to be obtained, it will demand attention to those systemic aspects of the problem which have rendered the soil susceptible. —J. T. Ingram, *A.M.A. Arch. Derm.* 76:157,1957.

Sebaceous Glands and Carotene

Intradermal injections of a carrot-oil water-solubilized suspension of carotene were concentrated by the sebaceous gland cells according to R. Greenberg, T. Comblect and R. Demovsky (*A.M.A. Arch. Derm.* 76:17,1957). Detectible amounts of vitamin A were visualized within the same cells and especially within the sebum (*a*) at the neck of the gland, (*b*) in the excretory duct, (*c*) upon the skin surface.

Acne Treatment

A lotion containing a combination of the antibiotic neomycin and the hormone hydrocortisone was reported by a skin specialist to have given excellent or good results in 95 per cent of a group of 116 patients with acne vulgaris treated for nine weeks or longer.

The study with the lotion, known as Neo-Cortef, was described in the *Journal of the American Medical Women's Association*, 12:73,1957 by Dr. Beatrice H. Kuhn.

The patients, many of whom received other forms of therapy previously, were instructed to put a small amount of the medication on the entire face and other affected areas twice a day. Since the lotion is invisible, greaseless and does not stain, Dr. Kuhn found that patient cooperation was excellent. The medication contains hydrocortisone in a concentration of one per cent.

After four weeks of treatment, good or excellent results were obtained in 84 per cent of patients. The maximum of 95 per cent was reached after nine weeks. The report notes that the 116 patients in the study used the lotion from 2 to 24 weeks, for an average of 2.7 months.

No relationship was found between response to treatment and factors such as age, sex, duration or severity of disease, diet, or previous therapy, including surgery.

Diaper Rash

Benson and co-workers believe that in recent years the incidence of persistent diaper rash has increased. The term is somewhat of a misnomer, because in most cases the diaper itself is not the cause of the rash; but it is a convenient term for a group of unrelated conditions and is not likely to be abandoned. The commonest cause is the breaking down of urea with the resulting formation of ammonia. Bacterium ammoniagenes is the organism most commonly responsible for this. Other rashes in this region that may occur independently concomitantly are miliaria rubra or prickly heat, thrush, excoriation associated with diarrhea, intertrigo, seborrheic dermatitis, and allergy. A severe rash may be complicated by secondary infection and ulceration. Diaper rash in general is aggravated by lack of cleanliness and maceration of the skin.

The treatment varies with the cause to be removed. As an aid to healing, the diaper area should be kept warm and dry. Swift advocates the use of hydrocortisone ointment followed by zinc oxide ointment or zinc oxide (Lassar's) paste. Kahan and co-workers state that the ideal preparation for local application should be moisture-repellent, keratolytic, and bactericidal. They used an emulsion containing 3 per cent silicone, which is moisture repellent; 0.2 per cent allantoin (glyoxyldiureid), which is keratolytic: and 0.25 per cent hexachlorophene, which is bactericidal. All three principal ingredients have the advantage of being nonirritating and nonsensitizing. Kaessler used a similar preparation in powdered form and obtained a clearing of the rash in 6 to 28 days. The results in a control series using ordinary baby talcum powder were not as good. Swift found treatment with silicone preparation effective but no better than that with zinc oxide ointment or zinc oxide paste. The silicones have the disadvantage of being more expensive.—*J.A.M.A.* 165:254,1957.

Fungacetin (Harvey) contains 25 per cent triacetin in a water miscible base for use as a nonirritating topical fungicide. By the action of an esterase found in fungus cells, the esterase slowly releases small concentrations of acetic acid which has a fungistatic action. The preparation is available as one ounce tubes and one pound jars.

Trionine (Hoffmann-LaRoche) is the active principle of thyroid, triiodothyronine, for the treatment of hypothyroidism and is characterized by rapid onset and short duration of action. It is available in bottles containing 100 or 1,000 tablets, 50 mcg., 25 mcg. or 5 mcg.

Achrostatin V Oral Suspension (Lederle) contains in each 5 cc. 125 mg. phosphate buffered tetracycline and 125,000 units of nystatin and is packaged as a 2 oz. bottle giving 60 cc. of suspension. The preparation combines the anti-infective action of tetracycline and the anti-monilial action of nystatin.

Cees Cough Medicine (Norwich) contains chloroform, phenyltoloxamine dihydrogen citrate, guaiacol glyceryl ether, ammonium chloride, sodium citrate, caffeine and menthol. It is supplied as 3 ounce bottles.

Pentrasine (McNeil) is a combination of 10 mg. pentaerythritol tetranitrate, butabarbital sodium 10 mg. and 0.05 mg. reserpine in each pink, scored tablet. It is available in bottles of 100 and 1,000.

Sintrom (Geigy) is 3-(alpha-acetonyl-4-nitrobenzyl)-4-hydroxycoumarin, an anticoagulant for the oral therapy of thrombo-embolic disorders. It is supplied as bottles of 50 double scored 4 mg. tablets.

Biosynephrin Nasal Spray (Winthrop) is an anti-allergic, antibacterial decongestant containing 0.5 per cent of phenylephrine, 0.05 per cent thenyldiamine hydrochloride, 0.02 per cent hydrocortisone, 0.6 mg. per cc. of neomycin as the sulfate and 3000 units per cc. of polymyxin B sulfate and is supplied as 15 cc. plastic squeeze botles.

Cartrax (Roerig) is a combination tablet containing 10 mg. of the tranquilizer hydroxyzine and 10 mg. pentaerythritol tetranitrate or 20 mg. of the tetranitrate and is it available in bottles of 100 and 500 tablets.

Aralen (Winthrop) has now been found to be an effect agent in the treatment of rheumatoid arthritis and spondylitis. It is available as 250 mg. tablets in bottles of 100 and 1,000 and as 125 mg. tablets in bottles of 100.

Atheroxin (Gray) is a palatable emulsion containing in each fluid ounce (30 cc,) 15 grams of refined corn oil and 3.33 mg. of pyridoxine hydrochloride emulsified with polyoxyethylene sorbitan monostearate and fatty acid mono- and di-glycerides. The preparation is preserved with 0.005 per cent propyl gallate and 0.1 per cent of sodium benzoate and is sugar-free. It is supplied in

Panalba Capsules (Upjohn) contain tetracycline phosphate complex equivalent to 250 mg. tetracycline hydrochloride and 125 mg. novobiocin for the treatment of mixed infections. The preparation is available in bottles of 16 and 100 capsules.

Neo-Deltef Drops (Upjohn) is 0.2 per cent of prednisolone in a sterile solution containing neomycin sulfate and chlorbutanol for the treatment of certain ophthalmic conditions. It is supplied as a 2.5 cc. bottle with dropper.

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YOU CAN DEPEND ON DOW

(*Continued from page 603*)

pityrosporum #1, pityrosporum #2, and microsporum lanosum.

CODE NO.	CHEMICAL	NAME	ZONE INHIBITION IN MM.* S. Aureus	P. Ovale	1 P. Ovale	2 M. Lanosum
13	Mercapto benzol thiazole	Rotax	42mm	38mm	41mm	0
14	N-acetyl bicylo-heptene	264 (MGK)	36mm	good	0	32mm
15	6-propyl piperonyl butyl carbitvl	Piperonyl Butoxide	18mm	0	0	33mm
18	Glyodin (2-heptadecyl glyoxalidine acetate)	Crag (fruit fungicide)	0	0	17mm	0
19	Manganese ethylene bisdithiocarbamate	Dithane M-22				
20	Zinc ethylene bisdithiocarbamate	Dithane Z-78				
21	Sodium o-phenyl phenate	Dowicide A flake	17mm	10mm	12mm	0
22	Para chlorometa xylenol	Ottosept 3% alcohol	18mm	14mm	0	2mm
24		MCP-90 (LOT O-9)	0	21mm	28mm	0
25	Alkyl-diamino ethyl glycine hydro-chlorides	Tego 103 S CRL #64312	5mm	20mm	26mm	21mm
26	2-4 dichlorophenol ester benzene	Genite EM 923	29mm	29mm	30mm	31mm
27	N-trichloro methyl thio tetra hydro-thalimide		31mm	0	0	0
28	Pentachloro benzene thiol	Captan 50 Vancide 89	30mm	47mm	35mm	41mm
29	Lauryl isoquinolinium bromide	Isothan Q15	22mm	30mm	35mm	29mm
30	Benzalkonium chloride		26mm	27mm	32mm	32mm
31	Benzalkonium chloride plus shampoo		11mm	2mm	0	3mm
33	2-4 dichlorophenol ester benzene plus lauryl		40mm	29mm	24mm	23mm
34	0.25% ortho benzyl isoquinolinium bromide (29) para chlorophenol in shampoo	Soltex	0	0	35mm	20mm
40	Bis-lauryl trimethyl ammonium polythionate 3%	Theradan	43mm	12mm	10mm	12mm
39	Selenium sulfide 2½%	Selsun	3mm	3mm	7mm	10mm
41	2,2′ methylene bis (3,4 6 trichlorphenol) 3% in isopropanol	Hexachlorophene	40mm	25mm	18mm	15mm
38	Chlor hexidine diacetate	Hibitane	33mm	28mm	26mm	0mm
47	P-chlorobenzyl-p-chloro-phenyl sulphoxide		0	20mm	8mm	0

*Inhibition Zone 10-25—Bacteriostatic
Inhibition Zone 25 and above Bacteriocidal

For the effectiveness of scalp preparations, Botwinick and Lubowe[17] have advanced a screening technique which is a modification of the hand washing studies for the determination of antiseptic qualities of soap.

Specific regional areas of the scalp are cultured for organisms by means of scraping with a curette and implants made on agar. Aliquot determinations are then calibrated. These identical locations are subsequently cultured at regular weekly intervals after continuous application of the test formulation, to determine the increase, the diminution, or the absence of bacterial flora.

The chemical compounds that were investigated were selected because of their low comparative toxicity. Combinations of these agents were also studied because of the possibility of synergism of action. This was rarely observed. It has been established that few antiseptic compounds retain bacterial inhibitory action in soaps, detergents, or shampoos.

Fungicides and pesticides in this assay were dissolved in special non-toxic solvents in order to assure ideal test conditions. These special organic solvents are the subject of patent applications.

The use of xylene, benzene, chloroform, acetone, and the chlorinated hydrocarbons was discouraged because of toxicity and impractibility as safe therapeutic vehicles. Several of the compounds detailed in the evaluation are used commercially at present.

We have found that following repeated laboratory trials, the most promising topical anti-seborrhoeic agents are the salts of the quaternary amines, the non-toxic organic sulfur compounds, and various chemical combinations of the halogenated phenols.

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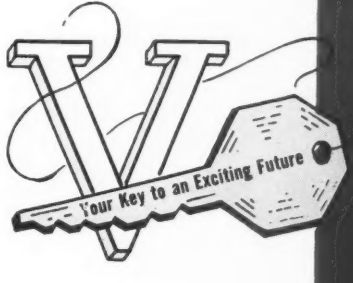

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scalp application as described previously, must be determined for the selected compound; whether to be utilized before, after, or as a shampoo.

Since the mode of action of these compounds are individual, their proper place in the therapeutic regime of seborrhea capitis must be determined by the physician.

The ideal preparation for seborrhea capitis and associated diseases, we believe will be a balanced and synergistic combination of an antiseptic and biochemicals; consisting of hormones, amino acids, vasodilators, enzymes, vitamins, and minerals. It will be adjusted to a suitable pH and dispersed in a medium which will aid in trans-cutaneous absorption (persorption)[15] into the pilosebaceous apparatus, especially the keratogenous zone.

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R. T. Vanderbilt Company
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Dow Chemical Company
Midland, Michigan

Monsanto Chemical Company
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New York, New York

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London, England

C. T. Laboratories
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Fort Dodge Laboratories
Fort Dodge, Iowa

BIBLIOGRAPHY

1. Reddish, G. F. The Etiology of Infectious Dandruff; J. Soc. of Cosmetic Chemists, Vol. 3 No. 90, August 1952.
2. Klauder, Joseph V. Modern Concept and Treatment of Dandruff and Seborrhoeic Eruptions; J. Soc. of Cosmetic Chemists, Vol. 7 No. 5, September 1956, pps. 443-449.
3. Lobowe, I. I. Dandruff—Its Etiology, Diagnosis and Treatment, Drug and Allied Industries; April 1956.
4. Spoor, H. I. Microbiological and Clinical Study of Anti-Dandruff Agents—proceedings of the Scientific Section, Toilet Goods Association, No. 23 May 1955.
5. Slinger, W. N. and Hubbard, D. M. Archives of Dermatology and Syphilology. Vol. 64 No. 41; 1951.
6. Finnerty, E. F. A New Effective Shampoo Treatment in Seborrhea Capitis; New England J. of Medicine; Sept. 1956.
7. Lubowe, I. I. The Evaluation of a New Anti-Seborrhoeic Formulation, Medical Times, January 1957, Vol. 85, No. 1.
8. Pipkin, J. L. Tinea Capitis in the Adult and Adolescent, Amer. Dermatological Association, May 1951.
9. Ball, F. I. A New Treatment for Seborrhoeic Dermatitis; Archives o Dermatology, Vol. 71 No. 696, 1955.
10. Goldzieher, M. A. Treatment of Hairloss with Estrogen; International J. of Dermatology, Vol. 93 No. 1; 1946.
11. Shapiro, I. Premature Baldness, Preliminary Report on Treatment with Topically Applied Estrogen Lotions, J. Medical Society of New Jersey, Vol. 50, p. 17, 1953.
12. Flesch, P. and Esoda, E. Deficient Water-Binding in Pathological Horny Layers. Nature (London) 1956. 178/4526 (211-212).
13. Lubowe, I. I. Management of Seborrhea Capitis and Associated Disorders; Medical Times, February 1954.
14. Lubowe, I. I. Treatment of Acne and Seborrhea Capitis by the Use of Estrogenic Hormone-Amino Acid Formulation; To be published.
15. Light, Amos. Persorption, J. of Soc. of Cosmetic Chemists; May 1957, pp 117-128.
16. Wells, F. V. and Lubowe, I. I. A Dermatological Approach to Cosmetics; Soap, Perfumery, and Cosmetics, Nov. 1952.
17. Botwinick, I. and Lubowe, I. I. Data to be published.

SYMPOSIUM ON ANTIBIOTICS

(Continued from page 594)

bited by PA 150 according to A. R. English et al.

PA 153 had very good activity against phytopathogenic and various saprophytic filamentous fungi.

PA 166 had excellent activity against pathogenic, phytopathogenic, and saprophytic fungi. PA 166 failed to protect mice against experimental *Candida albicans* infection after oral, subcutaneous, or intravenous administration. The acute oral toxicity (LD_{50}) of PA 166 is greater than 200 mg/kg. The acute subcutaneous toxicity is greater than 800 mg/kg; and the acute intravenous toxicity (LD_{50}) is between 12.5 and 25 mg/kg in mice.

The strain of *Streptomyces aureus*, which had been found by Raubitscheck, Acker and Waksman to produce a tetraene antifungal antibiotic, lost the faculty to produce this substance about five years ago.

Production of the tetraene can now be achieved according to C. P. Schaffner et al with regularity even in a chemically defined medium when traces of mevalonic acid and high levels of calcium and magnesium chlorides are present.

A major deterrent to the parenteral administration of the potent antifungal antibiotic **Amphotericin B** has been its extreme water insolubility. Utilizing a mixture of Amphotericin B with sodium desoxycholate E. Bartner et al prepared a water soluble form for intravenous administration.

The stable lyophilized powder is easily reconstituted with water for injection to form a clear concentrated solution which is diluted with glucose and administered by intravenous drip.

Cryptococcal meningitis has been considered a uniformly fatal illness although the course of the disease is characterized by exacerbations and remissions. The paper by H. Rubin et al deals with 6 cases of cryptococcal meningitis treated with intravenous amphotericin B. Five of these patients are alive at the present time with follow-ups ranging from 5 to 10 months. The 6th patient was moribund at the start of amphotericin B therapy and expired after only 7 days of intravenous medication.

Results obtained on these six patients indicate that amphotericin B is the most promising agent now available in the treatment of cryptococcal meningitis.

A report by N. N. Huang et al. compares the therapeutic effects of nystatin, amphotericin B and a com-

bination of amphotericin A and B in oral moniliasis of infants and children. From 1955 to 1957, sixty infants and children were treated with nystatin under various dosage regimens.

The results of this study indicated that nystatin, amphotericin B, and A and B are fungistatic. All the three agents produced no untoward local or systemic reactions.

Twenty cases of oral thrush in newborns and young infants were treated by P. J. Kozinn et al with daily doses of lyophilized nystatin in aqueous suspension. The medication was given orally and by swabbing of the oral cavity every six hours between feedings.

All patients improved, and 90 per cent were cured after one or two courses of therapy.

Chemotherapeutic Agents

Since the lymphatic system is important in bacterial invasion, it would be desirable to have appreciable tissue concentrations of antibiotics in the lymph nodes. To this end a number of antibiotic products have been prepared by P. Malek et al. with an increased affinity for the lymph system. In general they are salts of an antibiotic base, such as streptomycin or neomycin, with polyacrylic acids, sulfonic or phosphorylated polysaccharides, or certain natural polycarboxyl acids. These macromolecular salts have been termed "*antibiolymphins*." Streptolymphin and neolymphin are shown to be absorbed from sites of injection primarily by the lymph system. In comparison with the antibiotic sulfates in rabbits and dogs, they yield lower but more prolonged blood concentrations, and much higher and more prolonged lymph concentrations. The acute mouse toxicities of these two antibiolymphins are much less than the ordinary sulfate salts. On intraplural administration in dogs, neolymphin was still present in the pleural cavity after 48 hours, while neomycin disappeared in 4 hours; blood concentrations from neolymphin were low but lasted beyond 48 hours, those from neomycin reached a peak in 1 hour and disappeared in 12; lymph node concentrations were extremely high with neolymphin and lasted beyond 72 hours, those from neomycin were low and lasted only 12 hours. Intraperitoneal administration yielded similar results. The same chemical principle of tissue localization can undoubtedly be applied to other chemotherapeutic substances.

Methionine has been found by E. H. Kass et al to act as a urinary acidifier because of the excretion of sulfate ions.

The urine after the ingestion of methionine contains an antibacterial substance which is active at pH 5 and which is not present in urines from the same subject before the ingestion of methionine.

Potentiation of the action of mandelic acid and its derivatives has been observed; effective mandelic acid therapy may be maintained for months because of the effective urinary acidification.

A new series of long chain, chomlogous aminobicycloheptane hydrochloride derivatives, including secondary and tertiary forms was tested by V. L. Chandler et al against *M. tuberculosis* $H37R_v$, *Coccidioides immitis*, *Histoplasma capsulatum*, *Blastomyces dermatiditis*, *Candida albicans*, *Cryptococcus neoformans*, *Geotrichum* sp.

(Continued on page 681)

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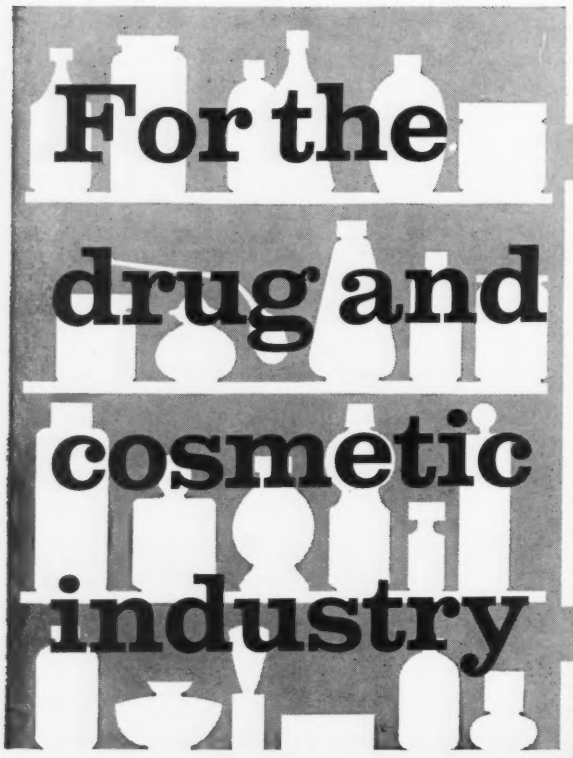

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Advances in Enzymology, and Related Subjects of Biochemistry, *Edied by F. F. Nord, Fordham University, Vol. 18, 435 pp., Interscience Publishers, Inc., New York, (1957), cloth,* **$9.00.**

This the eighteenth volume of the series contains: Cytochrome in Higher Plants by E. F. Hartree: Newer Knowledge of Succinic Dehydrogenase by Singer, Kearney, and Massey: Mechanism of the Toxicity of the Active Constituent of Dichapetalum Cymosum by Rudolph A. Peters: Deoxyribonucleoprotein, A General Material by J. A. V. Butler and P. F. Davison; Pyrophosphorylases and Phosphorylases in Biosynthetic Reactions by Arthur Kornberg: Le Role Biosynthetique du Cycles des Acides Tricarboxyliques by J. M. Wiame: Reaction Paths in the Higher Plants by W. O. James: The Chemistry and Function of Lipoic Acid by Lester J. Reed: and Recent Developments in the Mechanism of Lignification by Walter J. Shubert and F. F. Nord.

Systematic Organic Chemistry, Theory and Applications, *by Hugh C. Muldoon and Martin I. Blake, North Dakota State College, 828 pp., McGraw-Hill Book Company, Inc., New York, (1957), Cloth, Illus.,* **$7.75**

Designed for the general organic course, particularly where emphasis is on biological applications of science, this text will give beginners in the field a sound basic knowledge of the subject. Each individual class of compounds is studied in a logical, systematic manner; the simplest monofunction first, followed by polyfunctional complex types. General information about the organic compounds is given first. The aliphatics, aromatics, and heterocyclics are discussed in that order. Carbohydrates, proteins, terpenes, alkaloids, dyes, and metallo-organics are considered in detail. Separate sections are devoted to enzymes, antibiotics, natural pigments, vitamins, glycosides, and hormones.

Quantitative Organic Analysis, *by James S. Fritz & George S. Hammond, Iowa State College and The Ames Laboratory of The Atomic Energy Commission, 303 pp., John Wiley & Sons, Inc., New York, (1957) cloth,* **$6.50.**

This book reflects the authors' conviction that the analysis of organic compounds by selective, functional group reactions is a powerful and expanding field of analytical chemistry. Major stress is given to formulating and explaining basic principles. The invention of new analytical methods to meet new situations is also emphasized, and considerable space is devoted to the reasoning that can be applied to the choice of methods and the proper planning of trial experiments. Material includes direct and indirect acid-base methods, oxidation-reduction methods, spectrophotometric analysis, methods of achieving analytical separations, kinetics, and other techniques of quantitative analysis.

Dermatologic Formulary, *(From the New York Skin and Cancer Unit, Service of Dermatology): Frances Pascher, M.D., Editor, Revised, 1957, 172 pp., Paul B. Hoeber, Inc., New York, cloth,* **$4.**

This is the formulary of the Skin and Cancer Unit of New York University Hospital and the Department of Dermatology and Syphilology of the New York University Postgraduate Medical School. Its main purpose is to serve the practitioner by listing the most tried and useful dermatologic prescriptions, together with the briefest and simplest explanations of their uses, indications, and contraindications. In addition, it is the objective of this book to supply a model dermatologic formulary from which other hospitals, clinics, and institutions can, according to their needs, select a longer or shorter list of standard preparations for the care of the multitudinous sufferers from skin diseases.

Glass Reinforced Plastics, *Edited by Phillip Morgan, Editor of "British Plastics," 276 pp., Second Ed. (1957), Philosophical Library, New York, Cloth,* **$15.**

The text for this new edition has been thoroughly revised and many of the original chapters have been completely re-written. In addition there are completely new chapters on epoxide resins, the resin injection moulding process and on chemical plant applications. The general shape of the book remains unchanged. It sets out to present the facts on the raw materials, i.e. the resins and glass, to describe the fabrication techniques now in use and to discuss some of the problems of specialized applications.

Clinical Toxicology of Commercial Products, *by M. N. Gleason, R. E. Gosselin and H. C. Hodge, 1160 pages, The Williams & Wilkins Co., Baltimore (1957), cloth,* **$16.**

The purpose of this book is to assist the physician in dealing quickly and effectively with acute chemical poisonings in the home and on the farm when, through misuse, a patient eats or drinks a harmful amount of a commercial product. This book provides a list of trade name products together with their ingredients when these are available, sample formulas of many types of products with an estimate of the toxicity of each formula, toxicological information including an estimate of the toxicity of individual ingredients, recommendations for treatment and names and addresses of manufacturers.

The Chemistry of Plants, *by Erston V. Miller, Research Professor of Botany, University of Pittsburgh, 174 pp., Rheingold Publishing Corp., New York, (1957), cloth,* **$4.75**

Latest developments in plant chemistry are authoritatively covered. Sections on plant hormones, vitamins, and the chemistry of photosynthesis are outstanding for their current information. There is a chapter each on glycosides and alkaloids more encompassing than previous treatments, which will be of particular help to the fields of medicine and pharmacognosy. A unique final chapter brings attention to the present frontiers of research in the chemistry of plants. Included also are chapters on carbohydrates, proteins and other nitrogen compounds, lipides, pigments, enzymes, organic acids, and minerals.

The Terpenes, Vol. IV, *by the late Sir John Simonson and W. C. J. Ross, D. Sc., University of London, 524 pp., The University Press, Cambridge, (1957), cloth,* **$13.50.**

The terpenes are important constituents of the essential oils of plants, used as perfumery and flavoring agents. This series treats each group of terpenes in detail from the point of view of theoretical chemistry. Volume I deals with acyclic and monocyclic compounds, Volume II with dicyclic compounds, and Volume III with sesqui-and diterpenes. Volumes IV and V cover the more complex triterpenes, which occur in saps and resins and also in fish oils and animal body fats.

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Trade Literature

Acrolein and Derivatives

A new 40-page booklet on Acrolein and Derivatives (F-40,118) is available from Union Carbide Chemicals Company, 30 East 42nd Street, New York 17. Acrolein is a simple, unsaturated aldehyde that reacts at both the vinyl and carbonyl groups. As an unsaturated compound, it adds water, alcohols, and halogens at the double bond. As an aldehyde, it reacts with alcohols and polyols to form unsaturated acetals.

The first half of the booklet, a treatise by Howard Guest of Carbide's Research Department, outlines the chemistry of acrolein and methacrolein. The second half contains properties and uses of 14 derivatives now available as well as an extensive bibliography.

Brominated Oils

Chemical Sales Division, Abbott Laboratories, North Chicago, Ill., has available Technical Information No. 37 brominated Oils, which describes the use of brominated olive oil, brominated sesame oil, and brominated olive and corn oil with citrus oils.

Quaternaries

Because of the many uses for its quaternaries, Emulsol Chemical Corporation, 75 East Wacker Drive, Chicago 1, has issued bulletins 51 and 52. The first of these concerns Emcol E-607, a quaternary ammonium compound, with applications as a non-irritating germicide, deodorant or cationic emulsifier for use in germicides, cosmetics, after shave lotions, hair rinses, baby oil, and liquid deodorants. The second bulletin is on Emcol E-607S for non-irritating cationic emulsifiers, hair conditioners, and emollients for cosmetic preparations such as body and hand lotions, and acid cream hair rinses.

High Pressure Pumps

An informative, 4-page, two-color bulletin (G-537) on a new line of high pressure pumps is available from the Cherry-Burrell Corporation, Dept. 26, 427 W. Randolph Street, Chicago 6. The bulletin describes the company's Stellar-Flo Sanitary Pumps for high pressure liquid transfer, metering and spray drying systems.

PVP Booklet

A detailed, 48-page booklet on PVP (polyvinylpyrrolidone) describing its chemical and physical properties and the numerous applications thus far developed, is available from the Acetylene Chemicals Department of Antara Chemicals, General Aniline & Film Corporation, 435 Hudson Street, New York 14. Among uses discussed are cosmetics, pharmaceuticals, adhesives, detergents, soaps, beverage clarification, protective coatings, textiles, paper, inks, plastics and agricultural chemicals. Also discussed are its film-forming properties, compatibility, stability, protective colloid action, cross-linking, detoxifying properties, and its physiological acceptability.

Starch Components

Colloid Department, Stein Hall & Co., 285 Madison Avenue, New York 17, has available a 12-page booklet on Superlose and Ramalin (amylose and amylopectin). The booklet, entitled Superlose and Ramalin New Products Bulletin, describes the physical and chemical properties of these two principal components of potato starch.

(*Continued from page 677*)

Lengthening the aliphatic chain through 12 to 14 carbons increased both the antitubercular and antifungal activities of the secondary aminobicycloheptanes; further increase in the carbon chain length diminished the peak activity attained. The greatest spectrum of activity was noted in compounds with 10, 11 and 12 carbons in the aliphatic chain. Tertiary forms of the dodecyl derivative were equally active. Saturation of the ring appeared not to affect the activities observed with the unsaturated compounds. Hydrochloride salts of dodecylamines were less active than the aminobicycloheptane series.

Saturated and unsaturated secondary and tertiary amine derivatives proved to be too toxic for consideration as therapeutic agents. The maximum tolerated doses of a few of the most active compounds were ineffective in experimental infections of coccidiomycosis and candidasis in mice.

Phenyl PAS according to H. C. Meyer is a new paramino-salicylic acid preparation. It is a tuberculostatic agent. Its use is the same as PAS, i.e., to prevent the development of resistance of strains of tubercule bacillus to streptomycin and isoniazid.

The great advantage appears to be the small percentage of intolerances, gastro-intestinal symptoms, and stronger anti-resistant effect as compared with PAS.

Food Preservation

The non therapeutic uses of antibiotics are becoming more widespread. One of the most important of these uses from the public health point of view appears to be the treatment of food products with antibiotics prior to human consumption. We are obligated to protect the health of the public by not creating potential hazards.

It therefore would appear that what is needed is a planned program of investigation to determine which of the antibiotics is most applicable to food treatment and preservation and at what levels these antibiotics must be used.

The paper by J. T. Logue et al proposes to describe such a program of investigation and present preliminary data as has been obtained in one aspect of this investigation. That is, determining hypersensitivity of field workers spraying antibiotics on fruits and vegetables.

Extension of edible life by antibiotic treatment of fresh crabmeat, in the form of dips, has been attempted with little success, according to M. A. Benarde.

Experiments were conducted by R. F. Becker et al to improve the appearance and prolong the shelf life of prepackaged spinach. Spinach was dipped for 1 minute in 25 mcg/ml solutions of oxytetracycline, chlortetracycline and streptomycin, packed in ventilated polyethylene bags and stored at 38° F.

Less decay was noted in the treated spinach than in the controls when artificial inoculation was used. When no inoculum was added, soft rot development was slower and antibiotic treatments had less effect on the amount of decay that developed.

Bacterial population counts indicated the antibiotics suppressed the number of organisms present, and

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Reader's Questions . . .

Cold Cream Preservative: *We are sending you a copy of our cold cream formula which is used to prevent rough and chapped hands, and it has been very satisfactory for the purpose. Unfortunately, occasional batches become rancid and we would appreciate your recommendations as to the use of an appropriate preservative.* CHICAGO.

The formula you submitted is the standard U. S.P. formula for Rose Water Ointment which has always posed problems with respect to preservation. Actually, the addition of 0.1 per cent of methyl p-hydroxybenzoate (one gram) would only provide a partial solution in that growth of microorganisms would be retarded, but oxidative rancidity would probably not be affected. In a number of cases, the addition of 0.05 per cent of butylated hydroxyanisole has been successfully used as an antioxidant. Actually, the best answer lies in the U.S.P. itself, where a formula is given for Petrolatum Rose Water Ointment which is described as a non-rancidifying ointment base. I therefore suggest very strongly that you replace the expressed almond oil by an equal weight of mineral oil or by a mixture of 520 grams of mineral oil and 40 grams of anhydrous lanolin.

Pearly Vanishing Cream: *We have seen creams and lotions with a very attractive pearly luster and would like to have some indications as to how these products are formulated to obtain that effect. We do not wish to use added pearl essence.* LOS ANGELES.

The pearliness that you are interested in is usually ascribed to the crystallization of stearic acid from the emulsion or to the crystallization of an acid stearate. In formulating stearate creams or lotions, only part of the stearic acid is neutralized by the appropriate alkali and some of the unsaponified fatty acid will in time crystallize as pearly flakes. Triethanolamine often promotes this crystallization and the sheen may be improved by use of double pressed instead of triple pressed stearic acid, the small amount of oleic acid apparently being beneficial. Most important of all, however, is the *absence* of fats and oils, almost all of which prevent the development of pearliness, probably by keeping stearic acid in solution in the oil phase. Storage of the cream or lotion for a week or two at room temperature is necessary for the full development of pearliness.

biosasays revealed the presence of residual antibiotic activity.

Reactions and Resistance

During the past few years it has become evident that the extensive and sometimes indiscriminate use of antibiotics has resulted in an increase in the incidence of reactions to these drugs.

A total of 3419 case histories of reactions to antibiotics were reported and evaluated in the survey by Henry Welch et al. Of these, 422 were discarded because of insufficient data to classify, or because antibiotics were not involved, or because they occurred outside the period covered by the survey. A total of 1072 reactions were classified as severe (life threatening) and these included 809 with anaphylactoid shock, 107 superinfections, 70 severe skin reactions, 46 blood dyscrasias and 38 cases of angioneurotic edema with cerebral or respiratory involvement. A total of 1925 were classified as non-life threatening cases. The preponderance of reactions followed administration of penicillin.

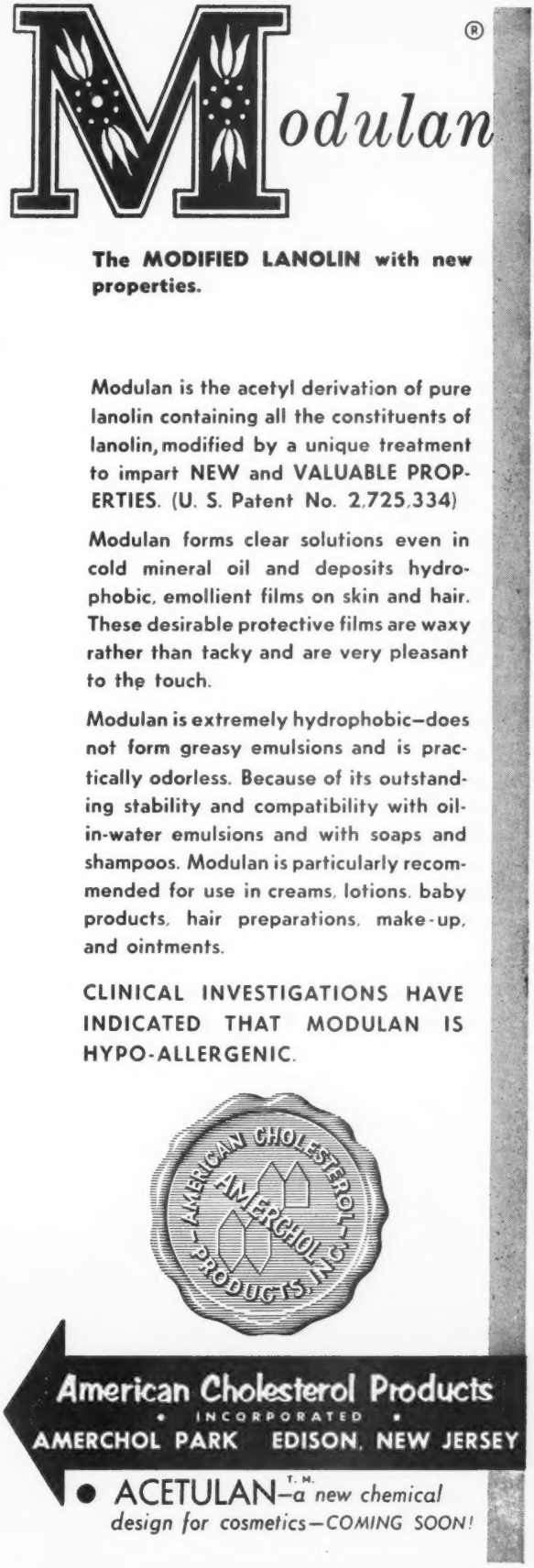
Of a number of hospitals isolates resistant to erythromycin on a clinical and laboratory basis, 72 per cent were sensitive to oleandomycin and carbomycin, *in vitro* according to A. R. English. Cross resistance between oleandomycin, carbomycin, and erythromycin occurred in only 20 per cent of these cultures.

In direct contrast, seven strains of *Micrococcus pyogenes* var. *aureus*, and single strains of *Streptococcus faecalis* and *Diplococcus pneumoniae* were made resistant to one of the following antibiotics by laboratory procedure: oleandomycin, carbomycin, and erythromycin. Complete cross resistance occurred among these three antibiotics.

FACE MAKE-UP

(Continued from page 595)

be incorporated in the formula which would cause greater adherence to the skin by their presence. In actual practice, it was possible to formulate such a product by balancing off the pigments and filler of the powder against the emulsifying agents, humectants and mineral oil so that in a dried compressed cake, the wet applicator could readily cause a cream to be formed on the cakes surface, be picked up by the applicator, and transferred to the face. The amount of humectant present controls the drying rate of the film after application and the amount of mineral oil present in relation to the humectant and emulsifiers will control the degree of water repellency. The ideal formulation, therefore, would be one where emulsification would take place on the cake's surface by gentle saturation with a moist applicator but not by exposure to water vapor, and where the film will remain moist sufficiently long enough so that proper application could be made without the film's drying in too short a length of time to impede this function; and finally after drying, where the film will not be removed by perspiration, but will come off when the face is washed in the usual fashion. The pigments and fillers used are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much the same as in loose face powders, except for the elimination of the metallic stearates, whose function has been taken over by the mineral oil. A somewhat greater concentration of the opacifier is also indicated since the dehydrated film will be somewhat thinner than with a face powder and, therefore, requires more opacifier.

The ratio between the powders and the oils, humectants and emulsifiers would vary with the nature of the substances used and the final effects desired. This covers an exceedingly wide range as disclosed by the patent literature. For a practical range the ratio is usually about 4 to 5 parts of powder to one part of the dehydrated cream base. The method of manufacture is much the same as face powders with a few extra steps. The powders are first ground dry in the usual fashion and then mixed with the oils, humectants and emulsifiers either by addition to a cream made from them with water and then dehydrated or else by addition of the liquefied ingredients to the powder, without the use of water, if proper mixing equipment is available. The dehydrated mass is then reground and pressed into pans.

The next step in the evolution of the modern powders is the development of the make-up lotion. This is really a not unexpected development, since it is essentially a cake makeup with the water added beforehand and, therefore, more convenient to use. Convenience of use is probably the greatest single factor in our market. It has been demonstrated repeatedly that everything else being equal, convenience of use will sell the product.

In its formulation the make-up lotion should in addition to performing the functions referred to in the cake-make-up, be a stable emulsion in which the powders and pigments are permanently suspended. The powders are, therefore, reduced to the minimum concentration since suspension would by this means be more readily effected. We, therefore, find that most of these products contain only opacifier and pigments as part of the powder phase; the opacifier being Titanium Oxide. In addition, suspending agents, are also used as a necessary adjunct to the emulsifying agents. In preparing a make-up lotion it would help the worker if he considers the powders as part of the oil phase and, therefore, consider the amount and type of emulsifiers and other substances in this context.

In preparing this product the pigments and opacifier is ground as in a regular face powder procedure and then incorporated into the emulsion while it is still warm. It is then stirred to nearly room temperature and finally homogenized.

The most recent addition is not new, but a new adaptation of the old compact powder. The modern compact powder is essentially much the same as its forerunner, but with additions made to overcome its post deficiencies. These improvements are possible because of improvements in grinding equipment and presses in the intervening years. The modern hammer

mills and other grinding machinery are now capable of a better job than formerly. The essential additions have been the use of oils in conjunction with the powder so that a greater adherency is possible. This coupled with the addition of larger concentrations of pigments have given the compact powder an entirely "new look."

PHARMACEUTICAL EMULSIONS

(Continued from page 597)

non-ionic surfactants, gums and hydrocolloids, and clays all find application in pharmaceutical emulsions.

Non-ionic emulsifiers and stabilizers are usually preferred because of their greater range of compatibility with active ingredients and adjuncts. The anionic and cationic emulsifiers often form precipitates with oppositely charged active ingredients. The non-ionics also tend to be less irritating and cause less sensitization and are usually less toxic. They are less sensitive to electrolytes, have little or no effect on pH and produce emulsions that are more resistant to freezing.

Generally speaking, pharmaceutical emulsifiers should have a high degree of purity, should be non-toxic, non-irritating, non-sensitizing, odorless, tasteless, colorless, and nearly neutral in pH. The relative importance of each of these factors and the extent to which each is controlled depend upon the mode of administration of the finished product.

The oils and waxes used as adjuncts in pharmaceutical emulsions are usually physiologically inert. Corn, peanut, sesame, and expressed almond oil are the most popular edible oils for pharmaceutical emulsions for oral use. While corn oil is favored in the United States, in other areas of the world sesame, or almond, or olive oil may be preferred depending on local market and other circumstances.

In formulating lotions, soft waxes are usually preferred although mineral oil and isopropyl myristate or palmitate are often included. Cetyl and stearyl alcohols, beeswax, spermaceti, lanolin and paraffin are commonly used in lotions and creams.[27-29] Stearic acid for its utility, *per se*, or as a soap formed *in situ* or stearates of glycerin and of other polyols are also often used. Silicone oils, either to impart water-repelency, or at lower concentrations, to improve texture are sometimes used topically.[30] Their high cost limits their use.

As in the case of emulsifiers, many synthetic oils and waxes are now becoming available. Here again purity, lack of odor and taste, lack of toxicity and irritation are primary requisites in selecting suitable materials for pharmaceutical emulsions.

Polyol humectants including glycerin, propylene glycol, and d-sorbitol syrup are very commonly used in pharmaceutical emulsions.[32] Mannitol and polyethylene glycol are less commonly used. These agents are included primarily to prevent drying of the emul-

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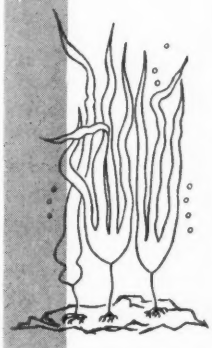

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sion during manufacture and storage. They also sometimes serve a dual purpose in that they may help to solubilize certain active ingredients or other adjuncts; the humectant may be used to make a primary dispersion of the hydrocolloid if one is used; it may also serve to lower the freezing point of the finished product. In lotions and creams the humectant plasticizes the keratin by maintaining moisture.

Because emulsion components are usually good media for growth of molds and bacteria, suitable preservatives are almost always used in pharmaceutical emulsions.[33,34] The esters of parahydroxy-benzoic acid are the most common but in oral preparations they tend to produce a numbing sensation in the mouth. Sodium benzoate is also reliable but only in a narrow pH range around 4.5. The proper level and kind of preservative to be used may vary with the particular product. Each product must be tested by intentional contamination with mixed cultures of known troublesome microorganisms followed by observations on growth and product stability of a period of weeks.[35,36]

Other substances such as antioxidants, foaming agents, antifoaming agents, buffers, chelating agents,[37,38] complexing agents and solubilizers, whitening agents, and dyes are used when required.

Special Precautions. The vehicle for any active ingredient serves the primary purpose of facilitating its administration. In so doing it must not in any way, detract from but should enhance the effectiveness or the stability of the drug. When an emulsion system is the vehicle, certain special precautions must be taken.

First, it is obvious that all ingredients in the formula must be compatible.[39,40] Precipitation reactions may not be observed readily in opaque emulsions and if the active ingredient were involved, its efficacy might be limited or lost.

Many emulsifiers are large colloidal molecules and may form complexes with the active or other ingredients.[41,42] Whereas some of these complexes precipitate, some are soluble and therefore not so readily detected. When complexed, these components are often less effective. For example, Tweens have been shown to reduce the effectiveness of preservatives,[43,44] and phenolic compounds destroy the suspending power of many carbowax esters.

Air entrapment in emulsions may accelerate the breakdown of the emulsion or may adversely effect the chemical stability of the active ingredient. Entrapped air can often discolor the drug. It can start oxidation reactions, as for example on Vitamin A. It can accelerate the development of rancidity. Pains should be taken to avoid air entrapment in formulation work by the application of good technique or the judicious use of antifoaming agents. In spite of this it may still be necessary at times to deaerate by the application of vacuum. It is obvious that these precautions must be adhered to vigorously during the production operations if the stability of the experimental materials is to apply to the marketed item.

Creaming and phase separation can be extremely dangerous in pharmaceutical emulsions, particularly if good homogeneity is not regained by simple shaking. This may result in uneven dosage, at times providing not enough drug and at other times too much.

Most pharmaceutical lotions are thixotropic.[45-48] Thixotropy is particularly desirable when the active ingredient is to be held in suspension. When shaken, the lotion should fluidize to allow for easy pouring and convenient application. The gel state should develop fairly rapidly to maintain a good suspension. Gel formers such as glyceryl monostearate, cetyl alcohol, and certain hydrocolloids are useful in these instances. The yield value of these systems should be greater than can be overcome by the gravitational effect of the suspended particles. Irreversible gels should be avoided.

Stability Testing. The stability of any pharmaceutical emulsion must be judged on the basis of the active ingredient as well as of the emulsion system itself.[49-61] In the early stages of development, accelerated aging test methods may be applied with much benefit to rapid progress. If these are performed properly, controlled accurately, observed carefully, and interpreted logically, usually the following can be achieved:

1. The type and rate of degradation of the active ingredient is revealed.
2. The optimum conditions for stability with respect to pH, stabilizers, light, heat and air are defined.
3. The best order of compounding is indicated.
4. The stability of the experimental product can be related to that of standard products.
5. The selection of packaging materials can be specified.

One effect of aging may be simulated by a centrifuge test. Test emulsions centrifuged at 1500 rpm should not show any separation either at the top or bottom after four hours. The resuspendability of solid active ingredients may also be observed.

Tentative conclusions concerning rheological properties may be drawn from microscopic observation of the size and shape of particles, their distribution, and their crystalline structure. Applied to emulsions stored for short periods of time at various temperatures, microscopic examination may be used to predict areas of difficulty.

Tendencies toward stratification and creaming may be detected by gradually lowering a rotational viscometer with T-bar spindle through a column of the emulsion and noting viscosity readings at very frequent intervals.

Autoclaving usually completely destroys most emulsion systems but can be used to advantage in studying the potential stability of active ingredients. Formulated drugs surviving two to four hours of autoclaving hold good promise for stability. When degradation occurs, stabilizers can be rapidly evaluated by comparing the relative degree of protection they provide.

Though such accelerated tests in no way substitute for long term shelf tests and though their results must be interpreted with care, by their use many preliminary formulas may be examined before commitment is made to a long term study.

It is worthy of note that the determination of the chemical stability of the active ingredient may be greatly complicated by the variety and nature of the components of the emulsion. In fact, the effort required for the development of chemical or biological assay procedures for application to an emulsion system may exceed that required for formulation studies.

Manufacturing

Because the volume of operation markedly influences performance in the production of emulsions it is necessary to apply careful pilot study in the conversion of laboratory observations to manufacturing procedures.[62,63] And because so many factors affect the formulation of emulsions, manufacturing formulas must be prepared in minute detail and followed meticulously in application if uniform batches are to be produced.[64,65] This is particularly true of lotions where gel formation is usually an important aspect governing stability and appearance.

There are usually three stages in the manufacture of a pharmaceutical lotion. The first begins with the separate heating of the oil phase and aqueous phase before emulsification. The ingredients comprising the oil phase are melted in order of decreasing melting points. The emulsifier (or one of the emulsifiers) is usually incorporated in the oil phase so that an instant and more effective emulsification can be achieved. Also in this manner, the oil phase container can be thoroughly washed with hot water to effect a complete transfer of oil phase. It stands to reason that the oil phase should be homogeneous. Because the of slow cooling rate of large batches only thermostable ingredients should be added to the oil phase. The temperature of the water phase should be a few degrees higher than the oil phase at the time of mixing and both should be well above the congealing point of the highest melting component. Usually only a portion of the water is used for the initial emulsification in order not to dilute the emulsifier excessively.

The second stage is that of emulsification. In the preparation of lotions, the oil phase is usually added slowly to the aqueous phase with vigorous, non-vortexing stirring. The energy input in agitation, the rate of cooling, the partition of emulsifiers, and the heat transfer play very important parts at this stage and must be closely controlled. If foaming has occurred it should be dissipated at this point. In most pharmaceutical lotions the oil phase congeals at a temperature greater than 45 °C. in order that the product may withstand storage temperatures up to 40 °C. without marked changes in viscosity.

This brings us to the final or congealing stage. This is the most critical stage of the manufacturing operation. Stirring usually obtained with a Gate-type

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stirrer, should be very slow but thorough enough to maintain homogeneity. The rate of cooling should be slow since sudden cooling will throw out hard wax particles and interfere with gel formation. The stage begins with fully fluid components at temperatures of 50-55 °C. and ends with the preparation in final form at 40 °C. After this point the lotion is allowed to stand undisturbed until it reaches room temperature. Viscosity pick-up due to thixotropy is usually experienced.

Soluble or insoluble active ingredients can then be added to this lotion using a minimum of shearing in order not to destroy the gel structure.

For emulsions where the oil phase is fluid and gel formation is not a factor the product is usually subjected to homogenization. For this purpose the usual Rotor-stator or piston-type homogenizers are used. The size and type of operation usually determine the type of homogenizer employed.

Packaging and Storage

Glass is undoubtedly the most common packaging materials for pharmaceuticals and is usually satisfactory for emulsions. In certain instances the nature of the active ingredient requires the use of hard glass or amber glass. Closures require no special attention except that waxed liners are not dependable in the presence of strong emulsifiers. Creams are better packaged in tubes than in jars because of the better protection afforded against water loss.

Tubes may be a source of trouble because of their metallic constituents. Pure tin is generally satisfactory for most creams, but is more expensive than lead or lead alloys. Lead alloys often cause darkening of creams because of galvanic effects. Acid products should not be packaged in aluminum tubes because of their corrosive effect on the tube. In some instances this can be overcome by the addition of a small amount of sodium silicate in the formula. A cream containing a mercurial should not be packaged in an aluminum tube.

Polyethylene is becoming popular as a container material for lotions and creams.[66] Polyethylene containers are unbreakable and convenient to use. Moisture loss is usually not a problem provided connecting parts fit tightly. There is always a tendency for certain materials in the emulsion to migrate toward the polyethylene wall causing either a change in the emulsion or collapse of the container. Since polyethylene is semi-permeable many volatile materials such as flavor and perfume components may escape. Active ingredients which are very sensitive to oxidation usually decompose rapidly when packaged in polyethylene bottles.

The usual precautions for storage apply to pharmaceutical emulsions. Freezing and very high temperatures must be avoided if physical stability is to be maintained.

The Future

What does the future hold for the use of emulsions in the pharmaceutical industry? This is difficult to say but certainly one can point out a few areas where more knowledge is needed.

There is a continuing interest in parenteral formulations of fat but progress has been handicapped by the difficulty of supplying a suitable or safe emulsion form. The proper emulsification of these fats will require very efficient emulsifiers of an extremely low order of parenteral toxicity. More efficient methods for sterilization, stabilization, and the controlling of quality will have to be developed. The area of parenteral emulsions is limited but there is every reason to believe that the future will bring considerable expansion.

Very little is known concerning the effect of emulsification on the absorption of drugs from the gastrointestinal tract. More extensive studies in this area may permit us to regulate the absorption of a drug through its incorporation in emulsion systems, governing almost at will not only the area from which the drug is absorbed but also the rate at which it can be absorbed.

Although there is an extensive literature on the effect of the vehicle on the behavior of drugs applied to the skin, little is known about the basic physico-chemical processes involved. Undoubtedly lipoid solubility of the drug is involved. The effective release of the drug from the base into the substrate is also a factor. A more thorough understanding of these will permit more effective formulations based on sound principles rather than the empirical methods now being employed.

The aerosol industry is currently developing procedures for making emulsified aerosols. This is intended partly to provide better miscibility of the contents of an aerosol package and partly to reduce the amount of propellant. In some cases the propellant may be the dispersed phase[67] and in other cases the continuous phase.[68] Water will normally be present in these formulas and in most instances the products will be packaged in metal cans. In spite of protective liners emphasis will be placed on the utilization of non-corrosive emulsifiers. Perfection of these techniques will add to the number of pharmaceutical emulsions.

Although emulsification by ultrasound has been successful on a laboratory scale,[69] efficient large scale ultrasonic emulsification equipment is not yet available. Undoubtedly the pharmaceutical industry will be among the first to gain by these developments particularly if emulsification can be achieved with no emulsifier or at least with much less emulsifier.

Pharmaceutical emulsions, being one of the more difficult dosage forms to develop, stabilize, evaluate, manufacture and control present many challenges to the pharmaceutical formulator. Progress in emulsion theory is becoming increasingly useful in the solution of these problems. The empirical method, long the

only practical means of solving emulsion problems, is now yielding to the scientific method.

BIBLIOGRAPHY

1. "National Formulary," 10th ed., J. B. Lippincott Co., Philadelphia, 1955.
2. G. N. Cyr, D. M. Skauen, J. E. Christian, C. O. Lee, *J. Am. Pharm. Assoc.*, 38, 615 (1949).
3. D. Y. Barker, G. H. DeKay, J. E. Christian, *J. Am. Pharm Assoc.*, 45, 527 (1956).
4. D. Y. Barker, J. E. Christian, G. H. DeKay, *J. Pharm. Assoc.*, 45, 601 (1956).
5. H. J. Florestano, M. E. Bahler, S. F. Jeffries, *J. Am. Pharm. Assoc.*, 45, 538 (1956).
6. M. N. Mutimer, C. Riffkin, J. Hill, M. Glickman, G. N. Cyr, *J. Am. Pharm. Assoc.*, 45, 212 (1956).
7. S. Rothman, "Physiology and Biochemistry of the Skin," The University of Chicago Press, Chicago, 1954.
8. S. Rothman, *J. Soc. Costmeic Chemists*, 6, 193 (1955).
9. J. W. Hadgraft, G. F. Somers, *J. Pharm and Pharmacol.*, 8, 625 (1956).
10. K. C. Varma, N. A. Hall, L. W. Rising, *J. Am. Pharm. Assoc.*, 44, 336,611 (1955).
11. L. Schwartz, *J. Soc. Cosmetic Chemists*, 2, 321 (1951).
12. H. A. Shelanski, *J. Soc. Cosmetic Chemists*, 2, 277 (1951).
13. C. M. Jones, P. J. Culver, G. D. Drummey, *Ann. Internal Med.*, 29, 1 (1948).
14. J. M. Lewis, *J. Pediat.*, 114, 559 (1939).
15. J. M. Lewis, S. Q. Cohlan, A. Messina, *Pediatrics*, 5, 425 (1950).
16. L. Freedman, E. Green, U. S. Pat. 2,518,320.
17. H. C. Tidwell, M. E. Nagler, *Proc. Soc. Exptl. Biol. Med.*, 81, 12 (1952).
18. B. G. P. Shafiroff, J. H. Mulholland, J. Baker, *Proc. Soc. Exptl. Biol. Med.*, 72, 543 (1949).
19. S. F. Freeman, *Quart. Bull. Northwestern Univ. Med. School*, 28, 113 (1954).
20. W. R. Waddell, R. P. Geyer, F. R. Olsen, S. B. Andrus, F. J. Frederick, *J. Lab. Clin.* Med., 45, 697 (1955).
21. G. F. Lambert, J. P. Miller, D. V. Frost, *J. Am. Pharm Assoc.*, 45, 685 (1956).
22. C. Pacifico, M. F. Ionescu, *Mfg. Chemist*, 27, 460 (1956).
23. J. R. Cockton, J. B. Wynn, J. Pharm and Pharmacol., 4, 959 (1952).
24. G. J. King, *Am. Perfumer Essent. Oil Rev.*, 66, 20 (1955).
25. H. Hilfer, *Drug & Cosm. Ind.*, 76, 466 (1955).
26. J. M. Siragusa, *Univ. Microf.*, (Ann Arbor, Mich.), Publ. No. 14634 92 pp. (1955).
27. A. R. Keast, *Chem. Products*, 17, 297 (1954).
28. L. Ivanovszky, *J. Soc. Cosmetic Chemists*, 6, 130 (1955).
29. H. Hilfer, *Drug & Cosm. Ind.*, 80, 162 (1957).
30. J. B. Plein, E. M. Plein, *J. Am. Pharm. Assoc.*, 42, 79 (1952).
31. D. H. Powers, *Drug & Cosm. Ind.*, 71, 610 (1952).
32. J. B. Segur, C. S. Miner, *Drug & Cosm. Ind.*, 72 772 (1953).
33. E. J. Rdzok, W. E. Grundy, E. J. Kirchmeyer, *J. Am. Pharm. Assoc.*, 44, 613 (1955).
34. R. G. Harry, *Am. Perfumer Aromat.*, 67, 33 (1956).
35. M. J. Foter, L. L. Nisonger, *Ann. N. Y. Acad. Sci.*, 53, 112 (1950).
36. D. M. Bryce, *J. Pharm. and Pharmacol.*, 8, 561 (1956).
37. A. E. Frost, *Mfg. Chemist*, 27, 412 (1956).
38. J. S. Faber, *Pharm. Tijdschr. Belg.*, 33, 73 (1956.)
39. W. Nixon, M. W. Cheetham, *Pharm. J.*, 165, 46 (1950).
40. L. Kennon, T. Higuchi, *J. Am. Pharm. Assoc.*, 45, 157 (1956).
41. D. Guttman, T. Higuchi, *J. Am. Pharm. Assoc.*, 45, 659 (1956).
42. A. D. Marcus, *Drug & Cosm. Ind.*, 79, 456 (1956).
43. C. A. Lawrence, *Ann. N. Y. Acad. Sci.*, 53, 66 (1950).
44. M. Aoki, A. Kamata, *J. Pharm. Soc. Japan*, 76, 939 (1956).
45. E. G. Richardson, *J. Colloid. Sci.*, 8, 367 (1953).
46. P. Sherman, *Mfg. Chemist*, 26, 306 (1955.)
47. T. Ruemele, *Seifen-Ole-Fette-Wachse*, 78, 32 (1952).
48. A. Axon, *J. Pharm. and Pharmacol.*, 8, 762 (1956).
49. R. G. Smith, *Assoc. Food & Drug Officials U.S. Quart. Bull.*, 19, 144 (1955)
50. W. Colburn, *J. Soc. Cosmetic Chemists*, 2, 193 (1951).
51. R. H. Marriott, *Am. Perfumer Essent. Oil Rev.*, 57, 23 (1951).
52. E. W. J. Mardle, A. DeWaele, *J. Colloid. Sci.*, 6, 42 (1951).
53. R. K. Neogy, B. N. Ghosh, *J. Indian Chem. Soc.*, 29, 573 (1952).
54. S. A. Karas, *Am. Perfumer Essent. Oil Rev.*, 62, 113 (1953).
55. H. L. Greenwald, *J. Soc. Cosmetic Chemists*, 6, 164 (1955).
56. R. Marchisotto, *J. Am. Pharm. Assoc. Pract. Pharm. ed.*, 16, 613 (1955).
57. J. Pickthall, *J. Soc. Cosmetic Chemists*, 6, 263 (1955).
58. S. Ross, *J. Soc. Cosmetic Chemists*, 6, 184 (1955).
59. J. D. Mullins, C. H. Becker, *J. Am. Pharm. Assoc.*, 45, 105 (1956).
60. J. D. Mullins, C. H. Becker, *J. Am. Pharm. Assoc.*, 45, 110 (1956).
61. J. D. Mullins, *Univ. Microf.*, (*Ann Arbor, Mich.*) Publ. No. 12779, 177 pp. (1956).
62. G. L. Brown, R. J. Myers, *Soap, Sanit. Chemicals*, 27, 43 (1951).
63. P. C. Wieseman, *Drug & Cosm. Ind.* 68, 44 (1951).
64. T. Ruemele, *Perfumery Essent. Oil Record*, 45, 198 (1954).
65. J. H. Oakley, *Pharm. J.*, 178, 45 (1957).
66. P. J. Carter, W. C. Griffin, *Proc. Sci. Sect. Toilet Goods Assoc.*, No. 23, (1955).
67. R. A. Foresman Jr., *Aerosol Age*, 2, 34 (1957).
68. "Kinetic Technical Memorandum 21," E. I. DuPont DeNemours & Co., Inc. Wilmington, (1956).

OIL OF VETIVER "BOURBON"

(Continued from page 599)

Europe in modern stills, and by skilled distillation experts, is qualitatively far superior to the oil distilled on the spot. It is true, that these two oils are different, even if they derive from roots grown in the same place. Thus the oils distilled in Europe or in the United States are special types of vetiver oil. It is also possible that the preparation of the root material before the distillation is different in Europe. It is certain that the distillation itself runs quite differently, as it is much

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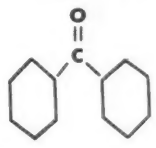

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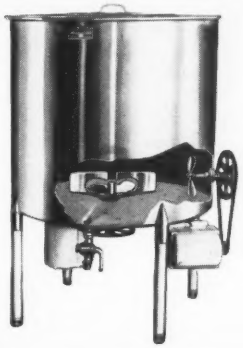

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faster in Europe than in Reunion. In the latter place, often 30 to 40 hours at 4 or 5 atmospheres of vapor pressure are necessary to complete the distillation, while in modern apparatus, yielding ten to twelve atmospheres of pressure, 12 to 16 hours are sufficient to complete the distillation. Moreover, we often find a difference in the raw material, that is the choice rootlets, for export and the other rootlets, distilled on the spot. Years ago, vetiver root was exported from Java and India in bales. Today such material is a rarity on the European market. The root material distilled on the spot can easily contain rather large quantities of siftings, dust, etc. from the rootlets, while the root material exported as such usually has been sifted, and does not contain root dust. Thus, the differences in the root material arise.

The vetiver roots must be about two years old when they are harvested and cut for distillation. This rule is properly observed in Reunion island as well as in the Belgian Congo, where large plantations of vetiver grass are found in the KIVU district, especially east of lake KIVU, in the region of BYUMBA in the rich RUANDA province.

But now, I find myself in Reunion island, which produces the largest amount of vetiver oil in the world. In Haiti, where the production, by the way, is also carried out almost exclusively by Frenchmen, as in Reunion, a fairly large quantity of vetiver oil is produced. It is highly possible that Haiti, during years to come, may become number one world-producer of vetiver oil.

As earlier mentioned, Reunion is an island of a mere 1,000 sq. miles, and it is situated 500 miles east of Madagascar. Until 350 years ago, it was uninhabited and probably unknown, but after the discovery of the sea route to India, Reunion and other islands became very interesting as stopovers and supply stations. Reunion is the largest of a group of three islands, and is of volcanic structure. In the ingerior of the island, one of the volcanoes, "la piton des neiges" (="snow-peak") towers more than 10,000 feet, and covers a very large area with its lava and basalt rocks. The vegetation in this area is quite unique, and among the rarities are also the fantastic fern-trees, probably survivors from millions of years ago. Only Tasmania can present a similar strange vegetation, but the fern trees in Reunion often reach 25 feet or more, with trunks of 12 to 15 inches in diameter. But surprisingly enough, animals are few and rare.

In Saint-Pierre on the south-southwest coast of Reunion island, I discussed vetiver oil with Monsieur Pichon de Bury, chemical engineer for the Barbot House, one of the big names in vetiver oils, geranium and vanilla in Reunion. With Monsieur Paul Isautier, who had taken me along in his car from Saint-Denis, we took a half-circle tour around the island within a few hours along nice, asphalted roads, and through a picturesque landscape. We arrived at the Godown Laboratories of the Barbot House, where we found the

chemist very busy late in the evening. He was just about to examine several lots of geranium oil, which had arrived the same day. He showed me some highly interesting samples of vetiver oil, the so-called commercial qualities as well as some special qualities. The latter were experimental and were the results of distillation experiments of various kinds. One sample showed an optical rotation of +48°. Other samples were from different sources, fractions from distillations, etc. All these experiments seemed to indicate that a prolonged distillation will often give an oil with powerful dextro-rotation and high viscosity, but the raw materials, that is, the rootlets, the age of the rootlets, and the quality of the soil are factors of importance. It is worthwhile here to add that vetiver oils, distilled in India from local material, often show a powerful laevo-rotation, but nevertheless can be of very good perfumery value.

I received samples on the spot of all these types of oils, and they have certainly been interesting to study closely. During my many years of preparation for this trip, I also made notes about the question of whether there exists a proportion between the optical rotation of vetiver oil and the perfumery value of same. Monsieur de Bury confirmed that still a number of clients purchase this oil according to its optical rotation, and that they most often demand a minimum of +18°. Monsieur de Bury also suggested, that this physical constant, if measured on the place of production, offered for the clients a rather safe method of evaluation of this perfume oil. The falsification or "cutting" is technically and practically, if not impossible, then at least very difficult to carry out on the spot or somewhere in Reunion itself. The island has only one seaport, but quite a number of customs officials, who know exactly what is normally imported, and they would be immediately suspicious in case of import of terpenes, cedarwood oil or similar materials. Furthermore, we find in Saint-Denis, capital of Reunion, control laboratories for the agricultural products of the island. These are, in sequence of importance: sugar, geranium oil, rum, vetiver oil, vanilla, and small quantities of ylang-ylang, tobacco and sisal. In Saint-Pierre, there has been established a "service de conditionnement," a consulting station, and such institutions are for the benefit of the planters, as well as for the exporters and also for the consumers. With vetiver oil amounting to some five per cent of the total income of the island, it is vitally important that the good name of Bourbon maintain its high standard, which it has kept for several decades. Even a few defective shipments would ruin the reputation of this oil on the world market, and the competitive producers in other countries would not hesitate to make capital of such an opportunity. This is why I feel assured that the bulk of vetiver oil exported from Reunion represents pure and non-altered distillates of vetiver roots, although sometimes in various qualities, according to the wishes of the customers. By far the majority of

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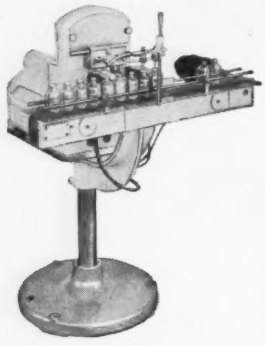

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vetiver oils distilled in Reunion, are oils of + 19° to + 22° of optical rotation. This represents a fair average of the lots from a very large number of stills of native origin in the island. There are only two modern stills in Reunion.

Among my samples of Bourbon vetiver oil, I have also a very light-colored one, distilled on demand from some customers. It is in certain cases desirable that a perfume be of light color. If it is possible to conform to such demands, without otherwise altering the quality of the perfume oil, one can say that a production of such specially light-colored oils is justified. The result and product was a pale, straw-yellowish oil with an optical rotation of + 16°30', and distinctly less viscous than the normal export oil. Its fixative properties were slightly inferior, but properly aged, this oil presented a beautiful sweet body.

On the other hand, it is obvious that the producer should also have a word to say, e.g. if his costumers on an increasing scale demand oils with an optical rotation of + 25° to + 30°, the producer would soon find fractions or head-fractions from the distillations accumulating, and making out oil-lots of a very low dextro-rotation. Such fractions are hardly salable. Talking about head-fractions, it is worthwhile mentioning that the light ones, the heads of the distillations of (not too aged) vetiver oil Reunion, contain exactly the elements, which are so often described as possessing an odor of potatoes or other raw vegetables. These odor descriptions (according to POUCHER'S works) have been applied to too fresh vetiver oils or vetiver oils distilled from too young roots. According to the writer's personal opinion, I would prefer to characterize the odor as that from fresh asparagus. This is, by the way, exactly the aroma which forms the base of the flavoring essences for certain soft-water drinks, very popular in India under the name of "Khus." The name "Khus" is one of the Hindu expressions for the vetiver grass, growing abundantly in various humid lowland parts of India and on the Himalayan mountain slopes. The roots here are to some extent distilled but mainly used in the manufacture of mats, and for export as root.

Doubtlessly, we all know, that the odor of vetiver oil commonly is called "green or earthy," while the principal and most wanted note of this oil should be the sweet, soft, tenacious, woody, but *not dry* note of great amplitude. Such characteristics are also found in the isolated sesquiterpenic alcohols commercially called vetiverol or vetivenol.

Not only this combination of alcohols but also the vetiver oil itself is acetylated by certain manufacturers of perfumery materials, but the results are quite different. Not only are vetiver oils of different origin used in the acetylization, but in some cases the oil is directly acetylated and rectified, for which reason the products are marketed vetiver acetate or vetiveryl acetate, indiscriminately. But only the acetylated product of the isolated sesquiterpenic alcohols yield vetiveryl

acetate properly called. This product distinguishes itself by being free from green, grassy asparagus notes or similar notes, and by presenting a fresh, fruity bouquet combined with a characteristic woody, *not dry* note, typical of vetiver. This is one of the rare perfume oils, possessing a woody, but *not dry* odor.

The fact, that the age of the root at the moment of harvesting is responsible for the difference in optical rotation (within the same habitat!!), has resulted in significant difficulties for competitive oils from certain other countries: Haiti, Brazil, etc. Even if the main root (the stem), is replanted immediately after being cut from the secondary roots, these should, nevertheless, be at least two years of age before they are used for the distillation of oil; in other words: before they can be harvested. This requires a fairly large area of cultivation. In Reunion, the planters and colonists suffer from a very low yield of oil, although the quality of this oil has always been considered as top. The distillation installations in Reunion are almost all of a very primitive type, and I have only found one still of more modern type near Saint-Paul at Pourpier, operating at high vapor pressure. Thus, it is necessary to prolong the distillation time. Even so, the yield of oil amounts to only one per cent, while in modern apparatus, the yield easily surpasses two per cent within less than half the distillation time.

The vetiver root is either dark brown with small, almost black rings, or the most common in Belgian Congo: straw-yellow. There has not been established any rules, according to which the root of a certain color will yield a better oil than the other. There is, however, a difference in yield and quality, whether the oil comes from roots of a rich soil, from volcanic laterite, or from a poor, sandy soil, which normally will give roots of a very low essential oil content.

The vetiver fields in Reunion appeared very small, but they were numerous. The grass is man-high and of great vitality. It is resistant to the torrential rains, the cyclones, the draught and even to the bush-fires, all of which are very common in Reunion. One can even see, after the rather frequent bush-fires, that the grass readily grows from the almost carbonized stubs after the first rains. The author often saw garden cultures of geranium and vetiver mixed, i.e. within the same estate, but as a rule, the geranium grows at higher altitudes than vetiver. There are more stills for geranium oil than for vetiver oil, but this is obvious, when you realize that the geranium oil is produced at a quantity of about 80 tons annually, and that the yield of geranium oil from the leaves is far smaller in percentage than the yield of vetiver oil from the roots. On the other hand, the distillation of geranium oil can be carried out within one and one-half hour, which allows for the treatment of several batches per day. It is also a common practice that vetiver grass is cultivated by certain planters but the roots are distilled by others. Either specialist is experienced in his field. The purchase of vetiver root demands a great knowl-

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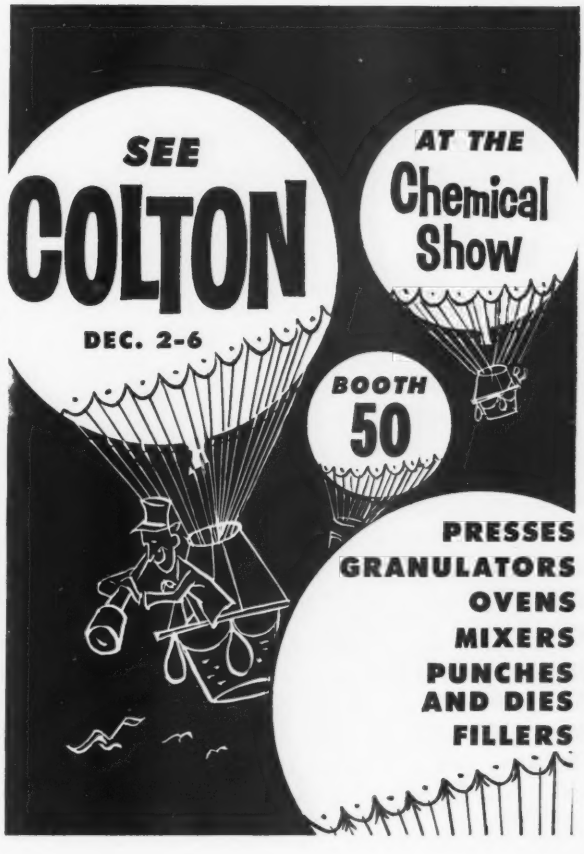

edge of the habitat of the grass, an important factor in the evaluation of the yield of oil.

Together with Monsieur and Madame Isautier, I was then guided by Monsieur Henri Le Merle, settler and planter of vetiver and geranium. We had been driving along small mountainous roads and tracks in order to conduct me to plantations at all stages of maturity. The fields belonging to Monsieur Le Merle were situated mainly in the district of Mont-Vert (Berive), not far from Saint-Pierre. The geranium fields were near Tampon at high altitude. The vetiver roots had just been taken up from the soil, and the main roots were arranged in orderly lines before the replantation. The rootlets were transported to the stills after being freed from soil, dust, etc.

Compared with the completely different picture I had obtained during my studies on vetiver production in Belgian Congo, these excursions in Reunion gave me a very good impression of the difficulties forming the background of the production of vetiver oil today. It is through such observations, that one becomes familiar with the perfumery raw materials. If, for instance, you learn that benzaldehyde can be produced from benzylchloride, you will immediately realize why you have to watch out for chlorine as an impurity in this type of benzaldehyde. The same is the case concerning essential oils: The problems behind their production will tell us what we can expect, and where and when we have to be on guard at the moment when we find ourselves receiving a new sample, perhaps 10,000 miles from the place of production or the habitat of the perfume plant in question.

TAKING THE DOCTOR'S PERSONALITY PULSE

(*Continued from page 601*)

pain. I have also seen cases where the general practitioner prescribes a liquid preparation for children which is the most pleasant tasting even though it may be therapeutically inferior to another similar product.

When we introduced Azo Gantrisin, a combination of our sulfonamide with pyridium, it was an immediate success. I attribute the success of this product to the general practitioner's strong desire to relieve his patient's discomfort. Pyridium relieves discomfort from cystitis or urethitis almost immediately whereas Gantrisin alone takes 12-24 hours to allieviate the pain.

It seems important to me to stress any ways in which our products will make the doctor or his patients more comfortable. Next to the drug's safety, this seems to be a major motivating factor for the physician. In many cases he subconsciously considers it more important than the drug's effectiveness.

4. INDEPENDENT

The typical general practitioner is a stubborn, independent, persistent individual. This characteristic is probably another reason why he takes up the practice of medicine. As an independent businessman, he does not have to report to anyone else or subordinate himself to a large organization. He tends to resent authority and strongly resists anyone telling him what to do and how to do it. We all know from experience how the general practitioner dislikes patients telling him what kind of medication they want and how he resents any suggestion that the pharmaceutical salesman is trying to tell him how to practice medicine. His desire to do things his way makes our job of selling him even more difficult. On one hand he is indecisive and needs help in making up his mind, and on the other hand he resists high-pressure selling or any suggestion that we are trying to tell him what to do.

Because of these personality traits, I have always found it advisable to give the physician the dignity of choice. By this I mean presenting the facts to him so that he can make the decision as to whether he wants to use the product or not and how he wants to use it. As a matter of fact, I can clearly remember that as a novice salesman I once suggested to a doctor that he use one of our products routinely. As a result, I got one of the finest lectures I have ever had on the fact that no physician ever uses any drug routinely. From this experience I learned that it was much better to recommend that a product be used prophylactically rather than routinely. The word prophylactically does not indicate that the doctor must use the product but rather suggests that he use his good judgment in the use of this product.

In our advertising and sales approach we must respect the doctor's desire for independence. With this in mind, we can expect that the low-pressure approach will be most effective. Our products must be described as tools for him to use as he sees fit. In all cases we must give the general practitioner the chance to make a decision in dignity and not in any way try to force him into accepting our products as something he can't possibly do without.

There are some products which are so exceptional that they can be sold with a minimum of advertising and selling. There are other products which are so inferior that they cannot be sold regardless of the excellence of our sales promotion. The bulk of the products which we market, however, fall into an intermediate group which have definite merit but which must be sold to the physician. *With such products it is most important that we establish in the doctor's mind a real need for the product.* To do this effectively, we have to consider the doctor's personality and how he reacts to our advertising claims and selling efforts.

NEGRO COSMETICS

(*Continued from page 605*)

it would seem reasonable to assume that the growth of hair during this period would negate this claim.

After a straightening job, the hair should have good gloss and softness with complete absence of brittleness or red discoloration. Finally, the product should have good shelf life; the most important changes to watch

out for are emulsion breakage, perfume destruction, discoloration, loss of lye strength, corrosion (jar caps), and loss of hair conditioning properties.

A considerable volume of hair straightener is sold in shops which specialize primarily in this work. The usual procedure is to apply a rather heavy layer of "pre-cream" or "pre-process oil," a petrolatum-mineral oil mixture, to the scalp, forehead, temples, the nape of the neck and back of the ears. The hair straightening preparation is then applied to the thick portion of the hair; the thinner parts at the temples being left for last. A comb is used to apply the straightener and care is exercised to avoid scratching the scalp. The process is usually completed after 10 minutes although in some instances it requires longer or shorter time, depending upon the individual. Very short kinky hair or extremely long hair (female) does not lend itself to caustic hair straightening. Female hair generally takes too long to straighten; the ideal hair length for a good straightening job, according to some operators, is 4-5 inches. The process is completed by a thorough rinsing of the hair with lukewarm water. This is followed by a neutralizing rinse containing certified dyes and a neutralizer such as citric and/or tartaric acid.

Experience has shown that an 8-10 week waiting period is the rule before the process is repeated. Brittle hair as a result of straightening has been traced to earlier use of para-phenylenediamine dyes or hot comb pressing oil treatments rather than the straightener itself. One exception to this is incomplete rinsing of lye from the hair which may cause brittleness and a characteristic red tinge. It is the belief of some engaged in processing that the red coloration is due only to incomplete removal of lye; nevertheless it is standard practice to use a black color rinse at the end of the operation.

It is of interest to note that only certain groups of male Negroes favor the use of hair straighteners. Some years, back, boys under 18 were not allowed to have their hair straightened. Today, the average of those who resort to hair straightening is from 16 to 35. After that, its use seems to drop sharply. One reputable manufacturer states that hair straighteners simply cannot be sold in Negro college towns and sales among the middle and upper Negro classes are virtually nonexistant. He maintains strongly that a good hair straightening job provides a more natural, well-groomed appearance in contrast to a grease-packed head of hair. One of the most important standards suggested by this manufacturer in judging a good hair straightener is the ability of the product to straighten the most refractory hair which grows around the temple. Practically all hair straighteners are made by manufacturers specializing in Negro cosmetics. Hair straightening has not been confined to the Negro trade alone. Many beauty parlors serving a white clientele stock a hair straightener of one sort or another for very kinky hair. Very often, it is a lye-based product.

(*Continued on next page*)

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Pre-process cream — General Formula 3

Petrolatum	60.0%
Mineral oil	40.0%
Alkali stable perfume	q.s.

Lye hair straightener — Functional Formula 4

Sodium hydroxide	0.1 - 3.0%
Surfactant	5 - 20.0%
Cosmetic base	50 - 15%
Water	40 - 60%
Hair conditioners	5 - 2%
Alkali stable perfume	q.s.

Neutralizing black color rinse — General Formula 5

Tartaric acid	58.0%
Citric acid	20.0%
D and C Black #1	18%
D and C Brown #1	3.0%
D and C Red #13	1.0%

Dilute with water to color strength desired.

Neutralizing jet black color rinse—General Formula 6

Part A

D and C Black #1	60.0%
D and C Red #3	20.0%
D and C Brown #1	20.0%

Part B

Citric acid	99.0%
Part A	1.0%

Dilute with water to color strength desired.

Hair Pomades

These cosmetics are generally considered the fastest sellers. A big factor in sales today is lanolin and the consumer looks for this ingredient on the label. Perfumes employed to best advantage are citrus types, bergamot being a favorite.

Pomade — General Formula 7

Petrolatum	75.0%
Lanolin	10.0%
Mineral oil	15.0%
Perfume	q.s.
Color	To suit

Bergamot Perfume — Formula 8

Menthanyl acetate (Givaudan)	40.0%
Oil orange, California cold pressed	5.0%
Citral	1.0%
Oil lemon, California	15.0%
Bois de Rose, Brazilian	2.0%
Geranyl acetate, pure	1.0%
Ethyl acetate, 10% in diethyl phthalate	0.2%
Aldehyde C-10, 10% in diethyl phthalate	0.1%
Musk ketone	0.4%
Resinoid deer tongue, 10% in diethyl phthalate	1.0%
Dextro-limonene	34.3%
	100.0%

Bergamot Imitation

400	Iso — Bergamate	
130	Orange Oil Florida	
60	Linalool	
10	Geranyl Acetate	
40	Citral	
150	Lemon California	
2	Aldehyde C - 10	10%
208	D—Limonene	
1000		

Skin Bleach

A good many Negroes do not admit to the use of this cosmetic which is based upon ammoniated mercury or similar mercurial compounds, although zinc peroxide preparations are used on occasion. Others ascribe bleaching action to lemon and buy vanishing creams having a strong lemon note with this in mind.

Bleach Cream — General Formula 9

Ammoniated mercury	3.0%
Cetyl alcohol	3.0%
Sorbo syrup	5.0%
Tegacid	20.0%
Lanolin	3.0%
Sodium lauryl sulfate	2.0%
Water	64.0%

Bleach Cream — General Formula 10

Ammoniated mercury	3.0%
Zinc oxide	2.0%
Petrolatum	95.0%

Negroes have shown definite standard brand preferences and certain major cosmetic organizations lead in sales of toilet soaps, shampoos, hand lotions, toilet water, deodorants, lipsticks, face powders, rouge, home permanents and facial creams. Despite this, manufacturers of specialty cosmetics primarily for the Negro trade are finding no difficulty in moving good duplications of standard brand cosmetics, particularly through house-to-house plans. These organizations have catered to the cosmetic needs of the Negroes for many years and are sensitive to their particular requirements.

In face powder, rouge and lipstick the cosmetic manufacturer catering exclusively to the Negro resorts to the use of the darker shades; they describe their powder shades as "nut brown," "high brown" and cocoa brown." As regards lipstick, medium reds and dark reds with blue base sell rapidly. Higher oil content in lipstick seems desirable, because of the apparent tendency toward dryness in Negro lips.

Facial creams are formulated to contain a somewhat higher oil content. Yellow and brown-tinted creams in general are preferred over the stark white or light ivory shades. Vanishing creams with a pronounced lemon note move on the strength of supposed bleaching properties even though no label claims are made.

Unquestionably, the negro cosmetic market is expanding rapidly and there is plenty of room for the manufacturer who is prepared to sell quality products; the Negro is no longer interested in shoddy merchandise in any form.

(*Continued from page 607*)

and most molds.[10] As little as 10 per cent w/v of propylene glycol in water was found to inhibit the growth of certain organisms. On the other hand, 40 to 50 per cent w/v of glycerin in water was required in most cases to achieve the same effect, and this was attributed purely to osmosis.

Freezing of aqueous preparations during shipment or storage frequently causes bursting of the tubes.[12] The presence of propylene glycol in the jelly will lower the freezing point and reduce expansion due to freezing.

Methylparaben and propylparaben are esters of p-hydroxybenzoic acid. They are colorless, neutral preservatives effective in low concentrations against fungi and Gram-positive bacteria but less effective against Gram-negative bacteria. The parabens are stable under conditions of heat sterilization (30 minutes at 120°) at pH 3 to 8.[11]

Heat Stability:—Table I shows the effect of 20 minutes' autoclaving at 120° on the viscosity of jellies made from various gums and the jelly formula presented in this paper:

TABLE I

Material	*Viscosity before autoclaving* in cps*	*Viscosity after autoclaving in cps*
Tragacanth Ribbon 1.5 per cent	41,500	6,000
Kelcosol 2.2 per cent (Sodium alginate, Kelco)	60,000	1,700
Sodium Carboxymethylcellulose Type 120 High, (Hercules) 5.5 per cent	54,200	6,200
Methocel 90 HG 4000 4.0 per cent (Hydroxypropylmethylcellulose, Dow)	52,000	48,800
Carbopol 934 (Goodrich) 0.7 per cent neutralized with NaOH	54,500	51,700
Jelly Formula	56,700	52,200

*Viscosity at 25°C. by Brookfield Synchro-Lectric Viscometer, Model LVF, spindle No. 3 and 4 at 6 rpm.

Three ingredients present in most lubricating jellies —tragacanth, sodium alginate and sodium carboxymethylcellulose—show an almost complete loss of thickening capacity as a result of autoclaving, whereas the jelly formula and its individual constituents exhibit considerable heat stability.

Aging Stability:—Samples of the jelly as well as solutions of Methocel 90 HG 4000 and neutralized Carbopol 934 were stored in glass jars at 42° for nine months without a decrease in viscosity as determined with the Brookfield Viscometer. This reflects the excellent aging properties of the jelly.

Incompatibilities:—The sensitivity of Carbopol 934

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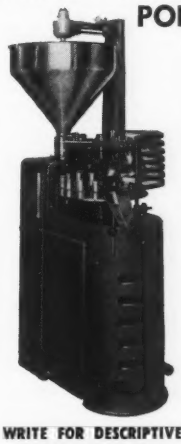
★ 120 Gross Daily—One Operator.
★ 15 Minutes to Change Size. Very low Change cost.
★ Quickly Cleaned — No Hose — Fills Tubes, Jars or Cans.
★ Accurate Fill—No drip—No smearing—No air.
★ Handles all metal tubes. Model RV-7 from ⅜" to 1½" diam. x 7½" high. RV-10 from 1" to 2½" diam. x 12" high.
★ Two-fold—Three-fold or Quadruple fold on RV-7. Two-fold or Three-fold on RV-10.
★ No tube—no fill. Coding Jaws—Automatic Ejector.
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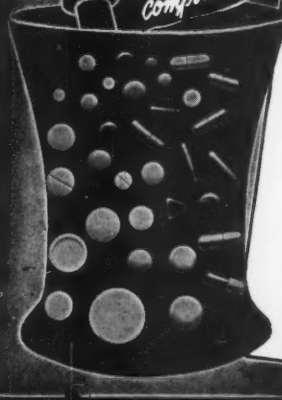
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to electrolytes is known[4]. Electrolytes markedly reduce the viscosity of Carbopol 934 solutions and for this reason the jelly formula may be used as a base for ionizable medicaments only if a higher concentration of Carbopol 934 is employed. This polymer, due to its anionic character, may form precipitates with polyvalent and large monovalent cations.[4,13]

The possibility that the electrolytes that are present in body fluids may adversely affect the consistency of the jelly was considered. When a stirring rod coated with the jelly was immersed in a 1 per cent saline solution, a viscous coat of jelly was maintained on the rod since no rapid mixing of jelly and saline solution occurred. This evidence led us to believe that body fluids have little effect on the viscosity of the jelly under normal conditions of use. Experiments on rabbits and subsequent clinical trials have confirmed this.

Clinical evaluation:—Limited clinical application of the jelly in various urological procedures including transurethral resection of the prostate gave good results. The jelly compared favorably with proprietary products in common use and was particularly well retained on the instruments.[14]

REFERENCES

(1) Fischer, E.K., "Colloidal Dispersions," John Wiley & Sons, New York, 1950, p. 152.
(2) Eisman, P. C. Cooper, J. and Jaconia, D., J.A.Ph.A., Sci.Ed., **46**, 144, (1957).
(3) Knight, H.F. Jr., Hodge, H.C., Samsel, E.P., Delap, R.E., and McCollister, D.D., J.A.Ph.A., Sci. Ed., **41**, 427, (1952).
(4) Service Bulletin GC-20, B.F. Goodrich Chemical Company, March 1954.
(5) Cohen, L., Soap and Chem. Specialties, **29**, No. 11, 42; No. 12, 50 (1956).
(6) Service Bulletin GC-20B, B.F. Goodrich Chemical Co., February 1956.
(7) Levy, G. and Schwarz, T.W., J.A.Ph.A., Sci. Ed., **46**, 558, (1957).
(8) Levy, G. and Schwarz, T.W., In Press.
(9) "Methocel 60 HG," The Doe Chemical Company, February 1956.
(10) Barr, M. and Tice, L.F., J.A.Ph.A., Sci. Ed., **46**, 217 (1957).
(11) Aalto, T.R., Firman, M.C. and Rigler, N.E., J.A.Ph.A., Sci. Ed., **42**, 449 (1953).
(12) Guiteras, A.F. and Reich, I., Proc.Sci.Sec.T.G.A., No. 7, 35, (1947).
(13) Schwarz, T.W. and Levy, G., In Press.
(14) Hinman, F. Jr., University of California School of Medicine, personal communication.

PATENT THOUGHTS AND TRENDS

(*Continued from page 629*)

country are reflected in the fact that many inventions today are highly technical. They cannot be grasped in a moment by a layman. They can be understood, in their trends and implications, only by men of long experience in science and technology. The system in practice has not been able to cope adequately with this situation. The burden on patent examiners has become severe. We expect them to be skilled in many arts, and to understand and critically evaluate arguments which may be decidedly mathematical or couched in highly scientific language.[31] This is one aspect of the sad fact that the Patent Office has not been supported on a scale commensurate with its importance to our economic progress, on which I shall have more to present later in this statement. In addition we have relied upon courts not specially trained in science for the implementation of our patent system.[32] As a result, there is danger that judicial decisions in patent matters may be based on misconception or superficial grasp. There is also the very serious result that the cost of presenting and rebutting evidence on technical points in patent litigation, conducted before tribunals lacking the necessary special training in advanced science, has become unduly burdensome and expensive. This inequity is further compounded by the fact that suits on the same patent are frequently brought in several of the ten Federal judicial circuits.[33] A patent owner may, therefore, be put to his proof, at great cost, in several different courts with the risk that different, and frequently conflicting, decisions will result. This is especially serious for the individual, or the small and struggling industrial unit, for whom it is most important in the public interest that the full protection of the patent system be secured.

The value of patents is often scoffed at among businessmen today. It is common to characterize them as merely an invitation for expensive litigation.[34] And, unfortunately, there has been increasing basis for this cynical point of view. When a small company, relying entirely upon its patents for the maintenance of its precarious position as a newcomer in the field, with no more resources than would be needed for covering the cost of development and introduction of its new product, is faced by what it believes to be infringement by a strong competitor, it knows that a suit for infringement may stretch out over years, and cost several hundred thousand dollars. It may be inclined to abandon what it believes to be its rights, or to throw in the sponge and sell out, which is not the outcome that is conducive to a desirable increase in the number of small industrial units among us.[35] From my own industrial experience with small companies I have seen little of this in extreme form, where a small company was actually threatened with suits which would exhaust it, but I have seen instances where fear of this sort of sandbagging made it difficult to raise capital, and took the heart out of the young men attempting to pioneer. Of course this problem of unreasonable costs of litigation is far broader than the problem of rendering the patent system fully effective under modern conditions, but it is especially acute in this connection because of the scientific nature of the subject matter. Some of the responsibility for present conditions lies at the door of the courts themselves without doubt, some with the patent bar, some with the Patent Office, and some with the Congress for failing to provide adequate support for the administration of the patent system. A solution is by no means easy, but I will have some tentative suggestions to present below.

2. *Economic concentration and monopoly through patents*

The increase in the technical complexity of science and the inventive process has had another result of even greater challenge to the patent system. The patent system functions best when unique devices or processes are independently protected by a single patent. The system does not provide adequately for the appropriate handling of complex developments involving devices covered by many patents. As a result, undesirable situations have arisen. For example, through the interchange and retention by the inter-

changing groups of exclusive operating rights under patents, a strong group of industrial units is able to dominate a whole field of manufacture, not merely for the statutory term of a patent grant, but in perpetuity by absorbing in one way or another improvements wherever they appear. The licensing of patents and the exchange of patent rights among patent owners is fundamentally in the public interest when it facilitates manufacture, but it should not be allowed to extend to the point of creating a permanent monopoly over a field of commerce. A permanent monopoly is inconsistent with the whole philosophy of the patent system. When such a monopoly is created through the interchange of licenses, however, the remedy which best serves the public interest is not the curtailment of the licensing or the destruction of the patents, but rather the expansion of the group under license. In this way the public will be assured of the product in question in adequate quantities and at reasonable prices. But the remedy of expanding the group under license is not now often utilized by the courts, and it is not inherently beneficial unless wisely provided for. There are beneficial patent pools, and those which are quite the reverse. It would enable business to proceed with more assurance, and far more effectively, if there were defined in the law the conditions under which cross licensing of patents is in the public interest.[36]

I realize full well that this aspect of the problem, that of patent pooling, is a difficult and intricate matter.[37] Certainly, I would not attempt to present and defend a solution in a brief statement. Rather it calls for a thorough and objective study by a fully representative group, including men with experience in patent litigation, at the bar and on the bench, but including also those who understand the trends of science and its applications, and those who have struggled with the vicissitudes of infant industrial units. I believe it would be very helpful indeed if this set of hearings were followed by a comprehensive study of the problem under congressional auspices, to be followed by the formulation of constructive legislation. It is relatively easy to state some of the aspects of the problem which such a study should tackle. The central puzzle is that of patent pooling, that is, the interchange of licenses among holders of patents. At first this seems very simple, but it certainly is not. Suppose there are two manufacturers, each of whom holds patents, but that these overlap so that neither can put out a fully satisfactory device without infringing the patents of the other. Certainly it would seem to be in the public interest that they should cross-license and proceed, rather than to continue where each puts out a device that is less adequate than the state of the art dictates. But suppose there is a third manufacturer with a patent or two in the field, and he is not admitted to the group. Is he to be left in the position where he must fold up, supply an inferior device, or sell out for a song to the combined group? An easy solution would appear to be to require that all pools be open pools,

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that is, when cross-licensing occurs at all to provide that all comers must be licensed at reasonable royalties.[38] But on close examination this will be seen to be highly defective. Consider such an open pool in existence, and an independent inventor who makes a striking advance in the field. Is he to be required to deliver his rights for a small royalty, to be determined by some committee of the pool? What he needs is an exclusive position for a time, so that an industrial effort may be built about his advance, and his contribution may be so unique that what he requires in the way of licensing from the pool is essentially minor. The situation is of course worse when there is no pool at all, and a single company controls a whole field through its patents.[39] Then the inventor cannot possibly enter the field and he has only one customer, and is rather strikingly in a buyer's market. And every new patent thus acquired strengthens the company's position and perpetuates the monopoly. There is a good deal of evidence that we had just this sort of situation for some years in the shoe machinery field.[40] But a full open pool has its disadvantages. What incentive is there, for a member of the pool or an outsider, to work for years at great expense to develop a radically different technical solution for the problems of an industry, if the outcome is that every manufacturer will promptly adopt his advance and he will receive only small royalties? The justification of courageous pioneering lies in the possibility of realizing large profits when success is attained, sufficiently large to submerge the costs of inevitable failures and disappointments. An industry fully cross-licensed at small royalties, is likely to be pedestrian in its advances. It will probably not support research programs of the highest order, unless, as has indeed been the case in some instances, it takes a remarkably broad point of view in regard to its public responsibility. Its attention will be devoted to minor advances, and to public appeal of relatively inconsequential nature. It is likely to lean on its suppliers for its innovations. This is not the American way. We want vigorous competition, on technical as on all other aspects, and courageous pioneering. True, this may be expensive and cause local distress at times, but these are the price of progress. With all the fine attainments of our automobile industry, especially in the use of mass production processes, I feel that the man from Mars might consider that it does not measure up to American ideals, on the score of radical technical advance, when compared to European attainments.[41] And I believe an unduly soft type of patent handling is one of the reasons for the situation.

On this whole subject of patent pooling we have thus far relied principally upon the antitrust laws.[42] There is indeed an interrelationship, for patents are property, and the improper use of property to limit competition by combinations is properly a subject for antitrust consideration. It has no applicability to the conferring of monopoly rights on an individual by the issuance of a patent, and should not, and comes into effect only when combinations of those rights are involved. But the antitrust laws are a blunt bludgeon with which to deal with the subtleties of the problem of patent licensing. If a combination in restraint of trade appears, of the ordinary sort, a solution in the public interest may be simply to dissolve the combination. But to do so, and leave each fragment with its own patents only would be obviously disastrous. To require general licensing of all comers at small royalties may produce just the deadly inertia and lack of initiative in an inindustry which the patent system is supposed to forestall. And destroying the patents, by requiring free licensing, may be even worse and in the same direction. The problem of patent pooling is of sufficient moment, and of such extraordinary complexity, to warrant it being covered by its own body of legislation. Industry generally, and judges too, no doubt, would welcome constructive steps in that direction. But the wise formulation of such legislation calls for deep study by a competent group.

In this connection it has been my experience that, among attorneys who practice general law, the prevalence of profound ignorance of the patent structure is at times appalling. In fairness I believe it should be added that among members of the patent bar there are far too few whose broad grasp leads them to understand fully the interrelationships between the patent system, the modern status of applied science, and the economic progress of society generally. But there are some who have the full qualification for objective and thorough counsel and advice, and their efforts should be enlisted.

3. *Invalidation of issued patents*

A common fallacy among laymen, and judges are not free from this disability, is to regard the act of invention as easy—after it has been done, and by hindsight. True, there are altogether too many patents issued on the trivial and obvious. An appreciable part of the burden on the Patent Office, and on industry, is due to the fact that the standards of invention have not been held sufficiently high, and because a failure to file on a trivial matter may result in the appearance of an embarrassing patent in other hands. But the cure for this does not lie in the destruction of patents by lay judges.[43] It lies in improved procedure, developed through careful and thorough study by independent, objective, citizens, who have the scientific and technical background to understand it fully.

We need, badly, freshly defined criteria of invention.[44] The guiding principle should be to provide for the issuance of patents in ways that will most effectively advance the public interest, and by fair rules that are impartially applied to all applications. At present we have too many patents issued on the obvious, but great care is needed in restricting on this front, for many times the apparently obvious does not appear for years, and might not appear at all, if it were not for the thoughts of some clever individual who sees the neat solution we all miss. When a new

result, of patentable nature, emerges from long study and research, it is unlikely that the result will be trivial. The Patent Office should not be called upon in any way to evaluate the probable commercial impact of a patent; that is hardly its function. We can be proud of the fact that the citizen who applies for a patent stands on his own feet, and that his arguments are utterly impartially evaluated. The record of the Patent Office in this regard, and in regard to all aspects of fidelity to a public trust, is admirable, and its detached position should be fully preserved. But better criteria of invention would remove a severe load from its back, and from the backs of industry and the courts.

One of the difficulties comes from the frequent tendency to identify patents as such with objectionable monopoly. There are a surprising number of laymen who feel that whenever a patent is destroyed, as by "dedicating it to the public," a public benefit is conferred. This is a strange point of view. It holds that a piece of property, which is what a patent is, created by an act of the Patent Office under the statues, is in some way evil. No doubt there are times when abolishing a particular patent, if it could be accomplished, would be a good thing, but this is far from a generality. No doubt, also, there are times when "dedication to the public" is justifiable, for example when a quasi-public institution holds a patent on a device which would come into use whether there were a patent on it or not. But if a patent on a device is thus destroyed, and venture funds would be needed to develop the device and put it into use, the public may not secure the benefit the device could confer for many years if at all.

There is a significant difference here between a patent and other property. For one difference a patent has a limited and specified life. A patent is created to achieve a purpose, namely to further the introduction of new combinations for the benefit of the public. At times it is not needed, as the introduction will occur anyway, and in such cases it can be in effect annulled, by providing for free licensing, without doing any harm. But, even so, it may have been good judgment to apply for it and secure its issuance, in order to ensure that a patent on the same idea would not issue in other hands. Mere publication is a less effective defensive measure than patenting since the former is not a complete barrier against the appearance of a patent, applied for by one who was not the original inventor, if the latter in effect abandons his rights, for publication, becomes a barrier only after an interval. Nonprofit organizations, anxious to manage the inventions which may arise in connection with their affairs fully in the public interest are often confronted by a quandary in this regard. And they have no easy way out by merely obtaining patents and announcing that they will license freely without royalty.[45] I have had some experience on this problem. Before the war, when I was located at the Massachusetts Institute of Tech-

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nology, a colleague and I invented a device which we felt was a worthwhile addition to equipment for data handling. We filed a patent application and arranged that any future income that might flow from it would be made available to MIT. In the pressure of war work the patent application was abandoned. After the war a department of the Government was anxious to obtain such devices for its work. But no commercial concern, naturally, wished to develop such devices at its own expense for sale generally unless its investment in development could be protected. As a result the department paid the full expense of building a machine for its use, but this was a rather special machine and no commercial use followed. I might add that, in this fast moving field, this particular device is now practically obsolete. In this case loss of the patent did, however, in my opinion do real harm. On the other hand, many of us have no doubt seen instances where we felt that a patent stood in the way of progress. Similarly we see cases in which a building is an eyesore, and feel it should be destroyed. In some instances we may tear down such buildings and make a public park, duly compensating the owners of course. But we move with great care in such cases, for inroads upon the principle of the sanctity of private property are not to be undertaken lightly. I doubt whether the same point of view is always present when courts invalidate a patent, and the conditions are indeed not the same. But the cure for the undesirable aspects of the performance of the patent system does not lie in an inclination to invalidate patents generally in any doubtful cases; it lies in bringing the system itself more into tune with modern conditions. And, unfortunately, the result of recent tendencies to invalidate have undermined confidence in the system without causing remedial action to be taken in regard to its genuine faults.[46]

4. *Patent suppression*

The patent system did not contemplate a complex industrial society under which it might be not only possible, but financially advantageous, for a limited group to purchase patents and withhold from the public the benefits of new inventions. The present patent grant imposes no duty on its owner to bring the invention into use.[47] Yet the public interest, in which the grant was supposedly made, is directly thwarted if the enjoyment of new things is unreasonably delayed. The individual should have freedom in the use of his property, but a patent is a special type of property and is peculiarly subject to considerations of public interest. Neither the cross-licensing, nor the acquisition, nor the retention of patent rights should be allowed to proceed to the point where a thing which the public wants, and for which there is no equally good substitute, is artificially withheld from public use. The patent system should facilitate the introduction of new devices, not prevent it.

While instances are undoubtedly infrequent in which the patent system has been used to suppress the introduction of an invention for which there was a genuine public need, that situation is, in some quarters, believed to have existed many times. Many connected with the operation of the patent system will state that suppression never occurs.[48] I have not seen a perfectly bald case myself, where a new device was arbitrarily withheld and there was no good substitute. It would be very seldom that there would be any inclination thus to suppress, with the keen competition we have in most fields, for any organization that took a dog-in-the-manger attitude of this sort would soon find his competitors getting the jump on him. It is very seldom that there is only one way of securing a particular desirable result. I have seen, many times, the advent of devices delayed because the inventor could not find support, and I think we would see less of this if the system worked more smoothly. Many years ago I examined into a device which had become so involved with poor patenting and general confusion that no one would touch it. This was a gyroscopic compass of a radically different sort, which appeared to me to fill a genuine need for a simple and relatively unprecise instrument for smaller craft than those that could afford excellent and expensive devices. Moreover this instrument involved some very clever usage of air film supported bearings and the like, procedures which are now just coming into use after more than 20 years. The fault here did not lie entirely with the patent system by any means. And this particular suppression certainly was not intentional. I have seen, also, instances in which improvements were withheld by a company until they felt they were fully warranted in introducing them. It does not make sense to disrupt production, incur changeover costs, and cause temporary unemployment to introduce at once every possible change in a product which will at all improve performance. No doubt judgment on such a matter often errs in both directions. But there is a safeguard present, for patents expire, and if there is much delay their possible value is lost. And even moderate delay is hazardous in a rapidly moving competitive field. However, whether or not the suppression of inventions is serious or infrequent, it is clear that such a situation should not be allowed to exist and that action designed to eliminate the very possibility of a successful and genuine suppression of inventions is in the public interest, if a means for such action, which would not cause damage in other ways, can be devised.

5. *Detrimental effect of an inadequate patent system to new and small businesses*

As scientific knowledge has broadened there has been an increased progression, not only in the interest in science, but inevitably, in the field of scientific application and in the opportunity for invention. The burden on the Patent Office has accordingly been increasingly great. One result has been that patents issued by the Patent Office, although presumptively valid, have too often failed to withstand examination by the courts.[49] Unless this situation is cured and the validity

of the patent grant strengthened, the venture capital required to finance new inventions will be more and more difficult to obtain. Steps need to be taken to support the Patent Office adequately and to insure that the patents which it issues are in fact valid.

Our patent system has clearly failed, in a number of ways, fully to keep pace with the changes in science and in industry. The Patent Office, for example, has not been able to handle carefully and expeditiously the great mass of complex scientific material thrust upon it.[50] Nor have the courts been able to handle either with wisdom or with dispatch the technical issues of great complexity which have come to them in increasing numbers for decision.[51] The increasing tendency of courts to invalidate patents throws a pall of doubt over the entire system. Inventors are discouraged. Businessmen are loath to risk capital in new ventures which depend upon patents. The cure for this situation is, first, to aid the Patent Office to do a better job and, second, to facilitate the difficult task of courts in dealing with patent cases.[52]

Since the war, a large number of small industrial manufacturing units have been created all over the country. They are often manned by young men who were thrown out of their grooves during the war, and never returned. These industrial units revolve, usually, about an idea—for an instrument or an electronic device or the like—which can be successfully made in small quantities, and which has a limited but attractive market. I believe that the Patent Office itself is attempting to evaluate the extent of this decidedly interesting development. I have had personal contact with dozens of these small companies which are competing successfully, in very many cases, with large, established industrial units. They can do so because of their flexibility and specialization. But very many of these new ventures depend for their very life upon the patent system to protect them in their infancy against cutthroat competition or the weight of enormous companies in their field. Ever since this country was founded, new industrial units have thus come into being, to succumb or to be successful. They have been absorbed by larger companies very frequently, but some have grown to be large themselves. Every company in this country was once small. Many got their start because they offered something new which the public wanted and would pay for, and because the patent system held an umbrella over their heads until they could stand the full rigor of the industrial climate. In my younger days, I was active, with a number of vigorous friends, in this sort of venture. We put together a number of new companies. Most of them succumbed, but a few survived and grew up. One was the Raytheon Manufacturing Co. No one today would feel that it is small or weak, although I hasten to say that I moved out of it many years ago, and its excellent performance in supporting defense objectives during the war and its healthy growth since, were entirely due to others. But in its early days it was most cer-

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tainly precarious. And the patent system was its main reliance in carving out a place for itself in the industrial complex. We have allowed this patent system to become relatively weak, and we should reverse the trend. It should always be remembered that one of the greatest safeguards we have in this country against undue commercial concentration is the continued advent of new, small, aggressive industrial units put together by pioneers.

REFERENCES

26. In its Review of the American Patent System, dated January **30, 1956** (84th Cong., 2d sess., S. Rept. No. **1464**), The Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary stated as its first preliminary conclusion: "The present patent system should be adjusted to modern conditions," pp. **1-4.**
See also The Prediction of Technical Change, by Gilfillan, Review of Economics and Statistics, vol. **34,** November **1952,** pp. **368-385.**
27. Charles F. Kettering, testifying before the TNEC in 1940, noted that we were passing through "the transition period from the individual as an inventor to the group as an inventor * * * group invention rather than individual invention" (hearings, pt. **30,** p. **16293**).
See also, Is the Rate of Invention Declining? by Stafford, American Journal of Sociology, vol. **57,** May **1952,** pp. **541, 542.**
And compare *Potts v. Coe,* **145** F. 2d **27** (Ct. App. D. C. **1944**).
28. The Transistor as an Industrial Research Episode, by Bown, Scientific Monthly, vol. **80,** January **1955,** pp. **40-46.**
29. See footnote **26,** supra; also, The Inventor in Exlipse, by Van Deusen, Fortune, vol. **50,** December **1954,** pp. **132-133, 197-198, 200, 202.**
30. See footnotes **13** and **19,** supra.
31. See The United States Patent Office, What It Is, How It Functions, What It Needs, issued by the U. S. Patent Office, October 3, 1955, in U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights, of the Senate Committee on the Judiciary. American Patent System, hearings, pursuant to S. Res. **92,** October **10-12, 1955,** pp. **202-203;** and testimony by Allen V. Astin, Director, National Bureau of Standards, in U. S. Congress, Subcommittee on Economic Stabilization, Automation and Technological Change, Joint Committee on the Economic Report, Hearings, October 14-28, 1955, pp. **577-578.**
32. For recommendations for more technically trained personnel attached to courts dealing with patents, see:
Science Advisory Board, Second Report, September **1, 1934,** to August **31,** 1935, Appendix **6,** Report of the Committee on the Relation of the Patent System to the Stimulation of New Industries, Vannevar Bush, chairman, pp. **331-333.**
TNEC hearings, pt. **3,** January **16-20, 1939.** Testimony of Vannevar Bush, pp. **892, 1139-1148.** (The latter pages are a reprint of the committee report referred to in the previous reference.)
U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, American Patent System, hearings, October **10-12, 1955,** testimony of Judge Learned Hand, pp. **132-133.**
Opposition to specialized patent judges and patent courts is expressed in the following:
Shall the United States Have a Special Patent Court of Appeals? by Evans, Illinois Law Review, vol. **36,** February **1942,** pp. **643-647.**
A Special Court for Patent Litigation? The Danger of a Specialized Judiciary, by Rifkind, American Bar Association Journal, vol. **37,** June **1951,** pp. **425-426.**
33. As Judge Schnackenberg stated in *Aghnides* v. *Holden,* **226** F. 2d **949** (**7th** Cir. **1955**), "Aghnides may litigate and relitigate again and again the question of validity of his patent as long as he selects a different defendant in each of the infringement suits which he files, thus avoiding the wholesome doctrine of res adjudicata. This queer result is one which we are unable to avoid. It is a situation which is particularly abhorrent when considered against the backlog of untried cases which clogs our Federal courts. The latter are cases where the litigant asks only for his day in court, not a plurality of days in court as Aghnides is entitled to under existing law. The remedies lie not in our hands. The Congress could by legislation grant relief." See also *Pierce* v. *Allen B. Du Mont Laboratories, Inc.,* 138 F. Supp. **959** Del). **1956**).
34. See Van Deusen, op. cit., footnote **29,** supra.
35. See U. S. Senate Special Committee To Study Problem of American Small Business. Future of Independent Business. Progress report, January **2, 1947** (Senate Committee Print No. **16**), pp. **72-80.**
Patents and Free Enterprise, by Hamilton, TNEC Monograph No. **31,** Washington, U. S. Government Printing Office, **1941,** p. **129.**
U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, American Patent System, hearings, October 10-12, 1955, especially testimony of Thurman Arnold, pp. **220-226.**
36. For one proposal to this end, see A New System for Encouraging Invention, by Gilfillans. Journal of the Patent Office Society, vol. **17,** December **1935,** pp. **966-970.**
37. The literature on patent pooling is, of course, extensive. See, for example:
Patent Pools and Cross-Licenses, by Toulmin, Virginia Law Review, vol. **22,** December **1935,** pp. **119-152.**
U. S. Congress, House Committee on Patents, Pooling of Patents, hearings on H. R. **4523,** February 11-December 12, 1935, Washington, U. S. Government Printing Office, 1936.
The United States Patent System, by Vaughan, Norman, University of Oklahoma Press, 1956, ch. **2,** Patent Pools, pp. **39-68.**
Compare also my testimony on patent pools before the Temporary National Economic Committee on January 17, 1939, in TNEC hearings, pt. **3,** January 16-20, 1939, pp. **887-890.**
38. See U. S. Attorney General's National Committee To Study the Antitrust Laws, Report, March **31, 1955,** pp. **242-247.**
39. *U. S.* v. *Radio Corporation of America,* complaint, November 1954.
40. See the several shoe machinery cases:
United States v. *Winslow,* **227** U. S. **202** (1913).
United States v. *United Shoe Machinery Company of New Jersey,* **247** U. S. **32** (1918).
United States Machinery Corp. v. *United States,* **258** U. S. **451** (1922).
U. S. v. *United Shoe Machinery Corp.,* 110 F. Supp. **295** (Mass. 1953).
Also:
The Shoe Machinery Case and the Problem of the Good Trust, by Keyes, Quarterly Journal of Economics, vol. **58,** May 1954, pp. **287-304.**
Corporate Concentration and Public Policy, by Purdy, Lindahl, and Carter (2d edition), New York, Prentice-Hall, 1950, ch. **12,** Shoes and Shoe Machinery, pp. **229-249.**
41. See especially Patents and Competition in the Automobile Industry, by Welsh, Law and Contemporary Problems, vol. **13,** spring **1948,** pp. **260-277**
Also TNEC hearings, pt. **2,** December **5-16, 1938,** pp. **256-376, 669-735.**
42. The many references to this subject include the following:
Patent Property and Antimonopoly Laws, by Barnett, Indianapolis, Bobbs-Merrill Co., **1943.**
Patents and Antitrust Law, by Wood, Chicago, Commerce Clearing House, 1942.
U. S. Attorney General's National Committee To Study the Antitrust Laws, Report, March **31, 1955,** ch. **5,** Patent-Antitrust Problems, pp. **223-260.**
Patent Pooling and the Sherman Act, Columbia Law Review, vol. 50, December **1950,** pp. **1113-1123.**
Patent Pooling and the Antitrust Laws, University of Chicago Law Review, vol. **17,** winter, **1950,** pp. **357-375.**
43. As Supreme Court Justice Jackson, dissenting in *Jungersen* v. *Ostby & Barton Co.,* **335,** U.S. **560,** at **572,** stated, January **3, 1949:**
"It would not be difficult to cite many instances of patents that have been granted, improperly I think, and without adequate tests of invention by the Patent Office. But I doubt that the remedy for such Patent Office passion for granting patents is an equally strong passion in this Court for striking them down so that the only patent that is valid is one which this Court has not been able to get its hands on."
44. See, for example, Efforts To Establish a Statutory Standard of Invention, by Edwards. Prepared for the Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, Washington, Library of Congress, Legislative Reference Service, February 14, **1956,** revised to October **15, 1956.**
Also, The Nature of Patentable Invention: Its Attributes and Definition, by Hayes, 2d edition, Cambridge, Mass., Addison-Wesley Press; **1948.**
The Impact of Recent Supreme Court Cases on the Question of Patentable Invention, by Davis, Illinois Law Review, vol. **44,** March-April **1949,** pp. **41-48.**
45. Cf. the experience of the Wisconsin Alumni Research Foundation, described among other places in American Medical Research, by Shryock, pp. **142-143.**
46. Among the many articles criticising extensive invalidation of patents by the courts are the following:
The Patent Law and the American System of Reward, by Freeman, Ohio Bar. vol. **25,** July **7, 1952,** pp. **491-497.**
The Judicial Erosion of Our Patent System: A Threat to Inventive Initiative, by Posnack, American Bar Association Journal, vol. **37,** May **1951,** pp. **357-360, 406-407.**
See also (**1**) footnote **32,** supra; (**2**) U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, American Patent System, hearings, October **10-12, 1956;** testimony of, among others, Jo Baily Brown, pp. **32-34, 107;** Louis R. Robertson, pp. **138-142;** Elwin A. Andrus, pp. **243-245;** Karl Lutz, pp. **309-331;** also statistical report on adjudicated patents, **1948-54,** pp. **176-185,** submitted by P. J. Federico; and (**3**) U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, Review of the American Patent System, Report, January **30, 1956,** pp. **4-5.**
47. *Continental Paper Bag* v. *Eastern Paper Bag,* **210** U.S. **405** (1908).
48. For articles denying or minimizing suppression of patents, see, for example:
The Truth About a 215-Mile Carburetor, by Getty, Journal of the Patent Office Society, vol. **36,** August **1954,** pp. **544-554.**
Patents and National Defense, by Hoar, Army Ordnance, vol. 31, September-October **1946,** pp. **161-162.**
Suppression of Patents, by Hoar, Army Ordnance, vol. **31,** March-April **1947.**
The Future of Industrial Research, by Midgley, New York, Standard Oil Co. (N.J.), **1944,** p. **11.**
For articles stressing the existence or prevalence of patent suppression, see:
Resistances to the Adoption of Technological Innovations by Stern, in United States National Resources Committee Technological Trends and National Policy, Washington, U. S. Government Printing Office, June **1937,** pp. **39-66.**
The United States Patent System, by Vaughan. Norman, University of Oklahoma Press, **1956,** ch. **8,** Suppression of Patents, pp. **227-260.**
49. See statistics on patent invalidity in U. S. Congress, Subcommittee on Patents, Trademarks, and Copyrights, of the Senate Committee on the Judiciary, American Patent System, hearings, October **10-12, 1955,** pp. **176-185,** Adjudicated Patents, **1948-54,** submitted by P. J. Federico.
50. See footnotes **22** and **31,** supra; also U. S. Department of Commerce, Advisory Committee on Application of Machines to Patent Office Operations, Report, December **22, 1954,** Washington, U. S. Department of Commerce.
51. In 1911, Judge Learned Hand noted, in *Parke-Davis & Co.* v. *H. K. Mulford Co.,* 189 Fed. **95,** at **115.**
"How long we shall continue to blunder along without the aid of unpartisan and authoritative scientific assistance in the administration of justice, no one knows; but all fair persons not conventionalized by provincial legal habits of mind ought, I should think, unite to effect some such advance."
This statement is quoted **32** years later by Justice Frankfurter, dissenting in *Marconi Wireless Co.* v. *U. S.,* **320** U. S. **1,** at **61,** who stated further:
"It is an old observation that the training of Anglo-American judges ill fits them to discharge the duties cast upon them by patent legislation*** However, so long as the Congress, for the purposes of patentability, makes the determination of originality a judicial function, judges must overcome their scientific incompetence as best they can. But consciousness of their limitations should make them vigilant against importing their own notions of the nature of the creative process into congressional legislation *** Above all, judges must avoid the subtle temptation of taking scientific phenomena out of their contemporaneous setting and reading them with a retrospective eye."
52. See Thinking Ahead, by Spencer, Harvard Business Review, vol. **40.** May-June **1956,** pp. **21-22, 24, 26, 28, 30, 32, 35, 166, 168.**

POLYETHYLENE BOTTLES

(*Continued from page 618*)

improvement in permeability characteristics to be obtained by increasing the density of the polymer is realized in progressing from the low density resins to the new medium or intermediate density resins which have densities in the range of 0.93 to 0.94. Beyond this

intermediate density range, the curve of the reduction of permeability flattens out so that little further improvement is to be gained by using the linear, high density resins at their premium prices.

For the squeeze-to-use container, the medium density resins also retain the advantages of flexibility and "snap-back" or recovery, which, though less than conventional polyethylene is still more than satisfactory for most uses. The high density resins, on the other hand, lose virtually all of their "memory" or ability to recover in a squeeze container.

The rigidity and improved tensile strength properties of the high density polyethylenes might allow the use of thinner wall sections in the fabrication of bottles, tubes and cans. However, the lower impact strength of the high density resins places a definite restraint on reducing the wall thickness of containers for many applications, particularly where the container may be subjected to rough handling.

The possibility of sterilization of bottles and other containers fabricated from the high density resins is a feature which is an apparent advantage for these materials as compared to the conventional polyethylene which may not be subjected to sterilizing temperatures. However, a very small percentage of the current bottle, can and tube market requires, or can take advantage of, the sterilizability characteristic of high density polyethylenes. Baby bottles are perhaps the most popularly known of container applications requiring sterilizability, but the total potential in this end use is not particularly significant when compared to the overall container market.

Also, when sterilization may be satisfactorily accomplished by boiling, the high temperature resistance of one of the medium density resins (with a density, for example, of 0.935) will satisfy this requirement.

For some pharmaceutical applications, it has been found that the major percentage of polyethylene bottles, as they are presently received from the manufacturer, are sufficiently free from bacteria so as to not require sterilization. The small portion of the containers which do require sterilization can be easily handled by cold sterilization techniques.

Another possible answer to the need for sterilization is the incorporation of an antiseptic agent directly into the polyethylene to provide a self-sterilizing bottle. At least one group of products with this built-in, semi-permanent sterilization is now on the market.

Returning again to the subject of density, we wish to point out that it now appears as though blending of conventional low density polyethylenes with linear, high density resins will provide a variety of new resin formulations for container manufacture. It may be possible through blending to come closer to the exact physical properties desired for a specific packaging application. However, much work must be done to determine such things as processability, mold design and overall comparative costs, before blending is to find any large-scale, commercial use.

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ADVERTISING INDEX

Abbe Engineering Company 701
Algin Corporation of America 685
Alvey-Ferguson Company 648
American Aromatics, Inc. 703
American Cholesterol Products, Inc. 682-683
American Sterilizer Company 650
Anchor Hocking Glass Company 619
Atlas Powder Company 582-583

Baker & Adamson, General Chemical Division Allied Chemical & Dye Corporation ..... Facing 577
Baker Chemical Company, J. T. 662
Barr & Company, G. 626
Beauty Fashion 584
Brunswick Laboratories, Inc. 707

Camilli, Albert & Laloue, Inc. 708
Carr-Lowrey Glass Company 624
Cavalla, Inc., A. 705
Charabot & Company, Inc. 666
Chemical Industries Exposition 693
Chrystal Company, Inc., Charles B. 680
Clintbrook Chemical Company, Inc. 695
Colonial Applicator Company 614
Colton Company, Arthur 693
Commercial Solvents Corporation 574
Continental Can Company, Inc. ..... Facing 620
Crown Cork & Seal Company, Inc. 616
Crown Cork & Seal Company, Inc.— Can Division ..... Facing 637

De Laire, Inc. ..... Facing 645
Delta Chemical Works 705
Distillation Products Industries 573
Dodge & Olcott, Inc. 581
Dow Chemical Company, The ..... 566-567, 588, Facing 644, 661, 673
Dow Corning Corporation 638
Dragoco, Inc. ..... Bet. 568-569
Drug & Cosmetic Catalog— 1958-59 Edition 632
Dunkel & Company, Inc., Paul A. 690
Du Pont De Nemours & Company, E. I. "Freon" Products Division 631
Durlin Company 658
Duveen Soap Corporation ..... Facing 585

Eastman Chemical Products, Inc. 678
Emery Industries, Inc. 667
Encapsulations, Inc. 687
Ertel Engineering Corporation 655

Fairmount Chemical Company, Inc. 692
Felton Chemical Company, Inc. 575
Filpaco Industries—The Filter Paper Co. 689
Firmenich Incorporated ..... Cover 4
Fisher Chemical Company, Inc. 689
Florasynth Laboratories, Inc. 569
Fritzsche Brothers, Inc. ..... Bet. 668-669

General Aniline & Film Corporation 670
Gifford-Wood Company 654
Givaudan-Delawanna, Inc. ..... Bet. 592-593, 642
Glycerine Producers Association ..... Bet. 644-645
Gottscho, Inc., Adolph 653
Griffin-Rutgers, Inc. 687
Gross & Company, A. 577

Harchem Division, Wallace & Tiernan, Inc. 680
Haring Equipment Corporation 697
Hazel Atlas Glass Division of Continental Can Company ..... Facing 629
Heyden-Newport Chemical Corp. ..... Bet. 644-645
Hoffmann-La Roche Aromatics Division 579
Hoffmann-La Roche, Inc. ..... 561, Bet. 660-661
Huisking & Company, Charles L. 695

Imco Container Corporation ..... Facing 628
C. E. Ising Corporation 707

Kelco Company 677
Kolmar Laboratories ..... Facing 581

Lautier Fils, Inc. 571
Lueders & Company, George 572

Mallinckrodt Chemical Works ..... Facing 593
Maryland Glass Corporation ..... Facing 621
Mathieu, Inc., Charles 691
Merchants Chemical Company, Inc. 580
Metalsmiths Division of Orange Roller Bearing Company 705

New Jersey Zinc Company, The 684
New York Quinine & Chemical Works 635
Norda Essential Oil & Chemical Co. ..... Cover 2
Nysco Laboratories, Inc. 707

Old Empire, Inc. 695
Orbis Products Corporation 578
Ownership Statement 707
Owens-Illinois Glass Company 610-611, 622

Parson Plymouth, Inc., M. W. 678
Penick & Company, S. B. ..... Facing 569
Pennsylvania Glass Products Company, Inc. 633
Pennsylvania Refining Company 565
Pfaltz & Bauer, Inc. 707
Pfizer & Company, Inc., Charles 665
Polak's Frutal Works 564
Polak & Schwarz, Inc. ..... Facing 580
Popper & Sons, Inc. 692
Potdevin Machine Company 690
Progressive Machine Works 703

Rawleigh Company, The W. T. 699
Read Standard, A Division of Capitol Products Corporation 646
Reheis Company, Inc. 640
Richford Corporation 630
Ritter & Company, F. 701
Robinson Wagner Company, Inc. ..... Facing 592

Scovill Manufacturing Company 612
Sheffield Tube Corporation, The ..... Facing 636
Shulton, Inc. ..... Facing 568
Sindar Corporation 586
Sonneborn Sons, Inc., L. 576
Standard Collapsible Tube Company 703
Standard Pharmacal Company 697
Sterwin Chemicals, Inc. 563
Stokes Corporation, F. J. 656-657
Synfleur Scientific Laboratories, Inc. 590

Tamms Industries, Inc. 707

Ungerer & Company ..... Cover 3
Union Carbide Chemicals Company ..... Facing 584
Upjohn Company, The 568
U. S. Bottlers Machinery Company 652
U. S. Industrial Chemicals, Company, Division of National Distillers & Chem. Corp. ..... Bet. 572-573

van Ameringen-Haebler, Inc. ..... Bet. 584-585
Van Dyk & Company, Inc. 634
Verley & Company, Albert 675
Verona Chemical Company ..... Facing 576
Vitamerican Oil Corporation 691

Wallace & Tiernan, Inc. 680
Welch, Holme & Clark Company 699
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